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[Vol. XV, No. 56]

HISTORY

THE QUARTERLY JOURNAL OF
THE HISTORICAL ASSOCIATION

Editor: Miss E. JEFFRIES DAVIS, M.A.

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Antiquity

A Quarterly Review of Archaeology

VOL. IV No. 13

MARCH 1930

Editorial Notes

A FEW years ago a certain bishop suggested half seriously that Science might well call a halt for ten years to put its house in order. His advice was probably not intended to be taken literally, for it was obviously impracticable; but the idea at the back of it was sound. It was, surely, that the time was ripe for synthesis, for the examination and use of the raw material collected and lying about in disorder. Creative scientific work always proceeds thus. When we have collected our notes and observations we cast them together into literary form and make a book, or plot them and make a map. Henceforth we use the book (or map) and put the notes aside, to be used if required for verification; but for all practical purposes the book (or map) supersedes the notes. It is one and they are many; it gives in a handy form all that is then known of a certain sphere of knowledge. The final result is more than the sum of its parts; it is a new document. To produce it the author or authors have carried out once and for all as a single task what would otherwise have had to be done over and over again by every individual who concerned himself with the subject. It may need expansion when new facts come to light, but it will always have value as a concise and synthetic record. In archaeology such records are, for example, Sir John Evans's books on Ancient Stone and Bronze Implements, Déchelette's Manual, Ebert's Reallexikon, the Reports of the Royal Commissions on Ancient Monuments, and bibliographies. They are not, and are not intended to be, literature; but the publication of each of them represents a stage in the advance of knowledge; they are landmarks or milestones.

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We have a definite object in repeating these platitudes (as they will appear to some) because ANTIQUITY itself aims at achieving a synthesis, and the present number is, we think, a peculiarly synthetic one. The subjects dealt with are looked at as a composite whole—and they are described in language which any educated person can understand. We state this because we have not always been able to achieve the ideal, nor probably shall we ever quite succeed in doing so, however hard we may try. With the beginning of our fourth year of existence we have made several good resolutions, which we shall be able to keep if our contributors play up to them as well as they do in this number. This represents no change of policy, but merely an effort to carry out more thoroughly the one we adopted at the beginning.

These remarks have also a wider bearing. Our policy is not isolated or merely individual; it conforms with the best scientific thought of the times. This may be expressed as follows:—The blind heaping up of raw material has proceeded far enough and it is time to call a halt. Archaeological excavation should not be lightly undertaken; much of it is mere treasure-hunting and adds little or nothing to knowledge (*e.g.*, the 'opening' of unmutilated round barrows and some other tombs). Excavation, if undertaken, must be justified. It must have some definite objective—to determine the age and character of a site, to snatch something from one that is doomed, to fill a gap in the chronological scheme. But there is an immense field for research quite apart from excavation, in field-work and air-photography. The imaginative use of large-scale maps, and of air-photographs employed in the field as maps, is as fascinating as excavation; it provides an admirable training in outdoor observation and method; it adds to knowledge, and it can do no possible harm to the ancient monuments themselves. To write a clear and concise description of a site is not at all easy. It is however essential that archaeologists should be able to express their meaning plainly, as we know all too well.

Our readers will remember that not long ago we published some criticisms of an ambitious scheme of excavation undertaken in East Anglia. The writer criticized not the method (which is all that it should be), but the launching of the scheme at all in the first instance. He claimed (and we entirely agree with him) that the new knowledge likely to be gained by the complete excavation of the site would not

EDITORIAL NOTES

be worth the cost ; and that better results could be obtained from other sites for far less money. To the general public such an attitude was almost incomprehensible. To many the word 'archaeologist' is equivalent to 'excavator', and it seemed quite wrong that an archaeologist should come forward and denounce an admittedly well-conducted excavation as needless. The general underlying principles, however, were strikingly reinforced by an official statement issued by the Society of Antiquaries of London and published in the *Antiquaries Journal* (1929, ix, 349). We welcome most heartily the lead thus given by our leading archaeological society.

It cannot be too often repeated that the one and only justification for excavation is the desire for knowledge, and of reconstructing the past. The excavator of a tomb and the detective employed in a criminal case are confronted by closely allied problems; they solve them by methods which have much in common. (Perhaps that is why so many archaeologists have a passion for detective stories). We have all been taught the importance of leaving the body untouched until the police come ; we are beginning to realize that ancient remains should be treated with similar respect, and left for an expert to examine. In a recent case of murder or suicide much depended upon a detail which amateur disturbance would certainly have obliterated. Dr Reisner and his fellow-workers at the Pyramids Camp left nothing to chance in their clearance of the tomb of Queen Hetep-heres: 'We had an intact tomb of the time of Cheops—the only intact royal tomb of the Pyramid Age. It was manifestly a reburial, but it contained the first royal furniture of this period ever found. Our duty was clear. No matter what the cost in time and labour, the evidence contained in that tangled mass of furniture, implements and vessels must be recovered to the last possible scrap. With the experience of many years of archaeological research we devised a special method of examining the mass of objects and recording every fact, aiming at a record which would enable us to replace every object in the tomb as it was, if so ridiculous a demand should be made on us'. (Bulletin of the Museum of Fine Arts, Boston, December 1929, xxvii, 83). They were thus enabled successfully to reconstruct the gold-cased furniture, as the illustrations show. But even this technical skill, valuable though it be, does not represent the highest achievement of the archaeological detective. Just as in police work it is the reconstitution of the *crime* that is aimed at, so in archaeology it is the reconstitution of *events*,

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that is, of history. Bit by bit a purely abstract structure is created in the mind of the architect, so to speak, which in the fullness of time he sets down in writing, and the world is richer than before. Dr Reisner has shown (what some of us knew before) that he is a master of both arts.



Every true archaeologist knows this, of course, however much he may be compelled to perjure himself in the interests of expediency. How different is this pure spirit of enquiry from the motives often imputed or alleged! How difficult it is to bring home its driving-force, its reality as a compelling motive, to those who have not caught the spirit! How mean appear the appeals to cupidity, to local patriotism, to tourist interests or to those of commercialized art! What we really want is a clear complete view of the past, whether it be of the course of evolution—of man himself and of the civilizations he has created—or of the space-grouping of cultures of peoples, represented on a map. The former gives us the curves of progress, the cycles of history, or whatever we may choose to call them; the latter provides the spatial framework. Both are great generalizations facilitating and enriching thought and suggesting causes. Thus we come back to the point at which we started at the beginning of these notes—to the present need of co-ordinating our facts.

The SUBSCRIPTION to ANTIQUITY for 1930 is now DUE. We would remind our Subscribers of the form and envelope inserted in the December number and that we shall be glad to have an early response. This does not, of course, apply to those who have already been kind enough to send us their cheques or to those who pay by orders on their banks.

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The Assistant Editor, 24 Parkend Road, Gloucester.

The Ascent of Humanity*

by G. LOWES DICKINSON

EVERY age, even those that seem at the first approach to be stationary, turns out to be transitional when we get to know more about it. Primitive societies are transformed by contacts and war. The China once conceived as immemorial and unchanging reveals itself as a long series of revolutions and wars. The apparent immobility of the medieval church becomes a succession of dissolving views; and perhaps the only generalization that may be true about this continual movement is that it becomes more swift and more hazardous as it proceeds, like the rapids of a great river hurrying to its fall. For there is something about the crisis in which we are at present involved which makes it at once more dangerous and more promising than those which have preceded. On the one hand, ideas are more powerful and more solvent; on the other—and this is a new fact in history—the power put at our disposal by science opens possibilities, both of re-construction and ruin, such as have never before been at our command. The War has made the position clear to all who care about society, and even men of science are beginning at last, though slowly and sporadically, to peep out of their specialisms and consider, with apprehension and alarm, whither we are being carried by these new forces which we have not yet learned to control.

For science has led us to a curious dilemma. It is most exact when it is least practical and most uncertain where knowledge would be most important. In its purest form it is mathematical physics, and it is there that its principal triumphs are achieved. But that is a region which hardly one man in a million can penetrate. The rest of us are left admiring but impotent while theory after theory rises and falls. We attain perhaps a vague realization of the amazing scale and complexity of the Universe, whether it be the infinitely great or the infinitely small to which our dazzled attention is called; we can see that the appeal of physics to the imagination is extraordinary, and might be a theme for poetry more profound than any that has yet been written, were it not that such truth can only be expressed in abstract symbols. The mathematicians have thus a monopoly of the poetry as well as of the

* *The Ascent of Humanity; an essay on the evolution of Civilisation*, by Gerald Heard. Jonathan Cape, 1929. 15s.

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science ; and in any case neither the one nor the other has any helpful bearing on the problem of human conduct. Physics, so conceived, one understands, is trying to swallow up chemistry, and chemistry to swallow up physiology, while on physiology supervenes the new and still chaotic, if promising, pseudo-science of psychology. I call it chaotic because even its method is under dispute. For while, at the one extreme, the fiction is pretended that there is no such thing as consciousness but only movements of the body, at the other the body is omitted, and all the stress is laid, we must not say on consciousness but on that obscure abyss called the ' sub-conscious '. And while the method of psychology is thus under dispute, it has not begun to touch on the main problem of action, namely whither we want to go and how we are to get there. The question of ends, hitherto, has been the province of religion and philosophy, while that of means is left to the art of men of action.

History, it is true, might deal with these questions, but can we say that history is a science? It was thought, in the middle of the 19th century, that it was, or at any rate could be. But that movement petered out into a bare attempt to relate facts truly without judging them. Of that method the inaugural lecture of Professor Bury at Cambridge gave the most logical and depressing exposition. For after setting forth the immense documentation lying before us in modern history (including not only all the books and pamphlets but all the newspapers of the world) he concluded that, though nobody could possibly master all this material, yet at any rate, for our consolation, every history would be itself part of the material for another, and so *ad infinitum*. We recall the dilemma of Tristram Shandy, when he discovered that he had taken a whole year to write one day of his life, and that at this rate he was not likely ever to finish his task. In literature the Cambridge Modern Histories are as good examples as one could find of this method. They are invaluable for reference, or would be if they ever gave references. But they are but raw material, waiting, not too hopefully, for the fire from heaven to descend to turn them into science. Moreover, in history, the material itself is gappy and accidental, and it may well be doubted whether, under these conditions, anything deserving to be called science could ever be constructed.

More interesting and important in my own judgment is that kind of history which used to be called the ' philosophy of history '. The 18th and early 19th centuries were the golden age of these productions, and Turgot, Condorcet, and Comte, Herder, Hegel and the long line of German speculators the well-known exponents. None of their

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productions could justly be called a 'science' of history, as their extraordinary diversity alone would be sufficient to show. But they are all sketches of the kind of thing a science of history might be, if it were practicable. For they provide a synthesis, and a synthesis, by a man of imagination and capacity, may always have some value and truth, though not *the* value and *the* truth. It is only when the human mind has worked over and judged the facts that the facts begin to be illuminating, and history that is alive will always be tendentious. But if the tendency is known both to the writer and to the reader there is no harm in that. It is the tendency that pretends not to be there that may mislead, and perhaps, sometimes, is intended to do so.

These remarks are introductory to a review of a book having the title prefixed to this article. The author is Mr Gerald Heard, and he appears to fulfil the conditions laid down for a good philosophy of history. Without being a specialist in any science he has mastered the facts, in many sciences, which are relevant to his contention, and his survey is one which throws new light on the course of history. Moreover he puts forward his view modestly and tentatively, referring to his work, in the concluding paragraph, as, 'a rudimentary attempt at a philosophy of history, an effort in the barest outline to show how, in the light of modern science, history might be viewed as the Odyssey of the spirit of man'. This is surely the right attitude to adopt in the existing, and perhaps in any possible state of our knowledge. To sum up the author's view in a few brief words is of necessity to misrepresent him; for what gives value to his work is the wealth of his illustrative knowledge. Briefly, the course of the argument is this. (I quote from the introduction). 'The human consciousness is engaged in a secular process, spiral in character. The most primitive societies, of which, in their original form, we have only scanty hints, are undifferentiated herds in which individuals have not yet developed. They are like what we suppose the communities of ants and bees to be. Later, by degrees, in different ways and different places, individuals begin to emerge. They become priests, kings, monks, philosophers, men of science; and the more they develop the more they slough off the social and corporate sense, until in our age at the period we call the Renaissance, they stand alone, intellectually sublime and morally monsters. But this development is involved in an inherent contradiction. The more the individual seeks and acquires the less he is satisfied, and Hamlet succeeds Caesar Borgia. Then, when the movement has run into this impasse, if it has not destroyed civilization, there begins to emerge a new form of consciousness. It

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is above the individual, as the earlier form was below him. Henceforth it begins to be the business of man not to acquire but to understand, and to understand by a co-operative effort. The age of science has dawned and at its dawn we stand. The problem before us is whether the higher consciousness thus emerging will be able to control the lower, that is bursting out all about us, with the cry of individuals newly released for the fruits that have turned so sour in the mouths of their predecessors'.

This is the general plan of the book, but some further explanation must be added. The process of evolving individuals has happened not once but many times. Mr Heard traces it in Egypt, in Greece, in the Renaissance, and in Modern Europe, and every time the end has been the collapse of the civilization. The first individuals to emerge and break down the homogeneous whole are the magician and then the war chief. They emerge in response to need, because they only seem to be able to produce what the Community wants, leadership in defence or aggression, and magic to secure the fertility of the soil ; for magic is the atmosphere in which primitive societies live and breathe. From this germ springs at last what history knows as States and Empires. But individuality has its nemesis. Arising to lead the society, it goes on to exploit it, and then, weary and disillusioned, finding less satisfaction precisely as it obtains more of what it is seeking, it collapses in the void it has created. This is the natural and predestined end of the race of kings and tyrants, conquerors and organizers. But these and the society they have created meantime have evoked a crowd of lesser individuals, who, in their passion to develop themselves, threaten society with anarchy. Thus in Mr Heard's view, 'the great danger now is that society, having guarded itself against all outward dangers, having the power to put far from it all threat of violence, will itself fail at the centre from a lack of nerve, a stroke of paralysis. Mankind, having at last raised itself above the floods of circumstance, will break down through a Babel of irreducible individuals. The psychological condition has already nearly reached saturation point. The numbers of self-conscious individuals are nearly sufficient. The centre of gravity in the community has hardly ever before been so high. The intensity as well as the extent of self-consciousness has its only precedents in the two last city-state phases, and yet to-day men live in individual-swamping empires and work in vaster economic systems, and the empires and systems compete as intensely as once did city states'. How can this danger be met? Mr Heard's suggestion is that a new stage of consciousness is emerging which may

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alter the whole course which the world has been pursuing for centuries and pre-eminently during the last hundred years. The triumph of mind over matter during the 19th century, marked in particular by our great engineering feats, was, in his view, the climax of a cycle of ten thousand years. But it is drawing to its end. 'It seems probable', he says, 'that no tower will ever outdo the Eiffel Tower, and that a Channel Tunnel may never be bored. Not that we could not do it, but that we shall no longer want to. We shall want instead to watch and try to understand the drift of the Universe, and as we come to see more we shall be less desirous to change things. The life of contemplation, not solitary but co-operative and social, begins to succeed the life of action and domination'.

This view of the possible future of our feverishly active age is, so far as I know, new, and is certainly surprising. Only the event can show some later generation whether it is true. But more disconcerting, very likely, than this suggestion of a delivery from precisely that activity upon which our age most prides itself, will be to most readers, and especially to those trained in science, Mr Heard's concluding chapter. For there he deals with a series of facts which are commonly treated as though they were mere invention of superstition or fraud—those facts of telepathy, clairvoyance and the like which have been so painfully collected and sifted by the Society for Psychical Research and which seem to suggest a form of consciousness more comprehensive than that by which most of us are bounded. The ignorance, indifference, or scepticism of most men of science to this whole region of experience is intelligible enough, so involved is the whole subject in confusion, credulity, and fraud. But that there is something there which is true and significant no one who has the patience to sift the evidence is likely to dispute; and no one can say what more may be discoverable, until our preliminary gropings have become an assured branch of science. Meantime, it should be noted, Mr Heard does not interpret this evidence, so far as it goes, in the common 'spiritualistic' sense. That interpretation he thinks is one that runs along the line of least resistance, flattering our wishes and reflecting our all too human outlook. In his view the medium, and most of those who concern themselves with such matters, are still at the stage of the earliest primitive individualism. 'As such they are driven by an overmastering desire for survival which can only express itself in individual terms. Such is the force of this desire that not only does it misinterpret its experience in anthropomorphic terms, but it condenses it into anthropomorphic images and

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phantasms. Experiencs at this stage of consciousness cannot conceive the evidence they produce as being something beyond mechanism, *i.e.*, symptoms of a superconsciousness, and so they must make out of it something below mechanism, *i.e.*, anthropomorphism'. The spiritualistic cult is part of the same movement as the cult of witches and 'the witch is the proto-individual, the priest-king in the Modern World. Born out of time, a poor laggard of civilization, she repeats the tragedy of his history without his purple glory: even as a squalid May Day mendicancy is the last whimper of that great appeal through vicarious sacrifice which once brought man back to nature in reconciliation, and which still, thin and high, like the last echo of an Alpine horn lost on the snows, speaks to many who listen with strained hearing of an atonement between the poor sinner and high heaven'. In this interpretation of the facts a primitive attitude of the observer interposes an erroneous hypothesis. The same thing occurs in the case of hauntings and other such phenomena. They are, Mr Heard suggests, influences deposited from 'the dream, the violent wish of the dead doer reinforced by being experienced by a series of individuals, who come into his path, generally, when most easily "tapped", that is asleep or frightened'.

The point made, in the course of this argument, that men are limited in their knowledge not only by their ignorance of facts but by their preconceptions, is fundamental in Mr Heard's doctrine. The phase of mental development determines the interpretation which men put upon facts. A good example is the misinterpretation of primitive people by 19th century inquirers. Being themselves rational they supposed rationality in the savage, not only reading reason into his behaviour but forcing upon him explanations in some sort rational. The savage is not prepared for cross-examination. 'He does not understand either why the question should be asked or why it should have an answer. The less he has ever envisaged an end, the more he feels fixed by this new dilemma and that he must be helped out. Under suggestion he invents one where there has never been one before, for, with his different time-sense, his short-range spontaneous motive has never needed such a goal-concept. He must please the inquirer. His mind, isolated and alienated by this new intrusion of teleology, becomes like the talking animals, parasitic on the mind that can and does constantly envisage action as a purposed deed toward a definite, personal, self-conscious satisfaction. As far as he may, he gives the answer that he divines is expected of him, and anthropological inquiry may have done something to civilize the savage but nothing toward understanding him—rather it

THE ASCENT OF HUMANITY

has done its best to destroy the thing which it intended to understand'. It is only recently that investigators have begun to realize that the primitive mind is not only filled with different objects from our own but is also different in its nature and working. And, as Mr Heard thinks, they are enabled to realize this only because and in proportion as they are themselves becoming like the people they are investigating—conscious, although at a higher level. For in his view, as we have seen, development is neither rectilinear nor circular but spiral, and the most modern man looking down from above upon a phase vertically below his own understands it better than those could who see it only from an angle. The evolution of knowledge is thus not merely an accumulation of facts nor even an interpretation of them. It depends on the moving of the consciousness of the enquirer to a position where he is capable of seeing straight. In particular examples we are all aware of this, for nothing is more characteristic of the half educated than the haste with which they apply to complicated facts theories which merely reflect their own incompetency and their own wishes. The innumerable systems of religion which litter the course of history are sufficient evidence of this, and so is the never failing host of crank political systems. But, in Mr Heard's view, the very development of consciousness necessitates such misapprehension.

Enough perhaps has been said to draw the attention of those who endeavour to understand history to a book which, whatever be the final verdict on its general thesis, is seminal and alive, not merely another spadeful of earth piled upon the great dust-heap of history. In particular, the book should be attractive to the younger generation, who, having been shaken out of the too easy optimism of progress, are in danger of falling back upon a hopeless and therefore, in the end, cynical and unproductive scepticism. Mr Heard makes no religious or metaphysical assumptions. He bases himself on what is known by actual observation, and endeavours thus to build up a view of the whole process which, if it does not impose itself inevitably, is at least a possible interpretation. We are not likely in any near future to arrive at final certitude. But we need not and shall not, if we have hope and faith, abandon ourselves therefore to despair. We are involved in this great quest which alone gives dignity and worth to our life, and the sentence of Emerson is perpetually true for those who can receive it:—

Heartily know,
When half-gods go,
The gods arrive.

The Gospels and their Oldest Manuscripts

by F. C. BURKITT

TO write about the Gospels, explaining their origin and transmission, within the compass of an article in *ANTIQUITY* is only possible by expounding the writer's own views on this much discussed and in many parts highly controversial subject in a somewhat peremptory and dogmatic fashion. I therefore make my apologies beforehand to such of my readers as may hold other views, which the inevitable limits of space make it for me impossible to discuss. The main problems I have to consider are: (1) how did the Gospels come to be written, (2) in what ways were they preserved, and (3) what are the chief texts actually extant?

I

The public career of Jesus Christ was a short period of about eighteen months ending with April, A.D. 30, or a year or so before or after. Pontius Pilate was superseded in the spring of A.D. 36, so that the crucifixion of Jesus must have taken place before that year at latest. The earliest surviving Christian traditions about the writing of the Gospels tell us that Matthew wrote in Hebrew while Peter and Paul were alive, that Mark wrote after the death of Peter, that Luke was connected with Paul, and that John wrote last of all at Ephesus. Irenaeus of Lyons (A.D. 180), who tells us this, was concerned to demonstrate the closeness of the links which bound the Catholic Church to the Apostles of Jesus, so that we may be reasonably certain that he has not post-dated the Gospels: it was in Nero's time, about A.D. 64, that Peter and Paul were martyred, so that the date of Mark's Gospel must fall after that.

Thus, neglecting for the moment the tradition about an early Hebrew Gospel drawn up by Matthew the Apostle, we find that an interval of about thirty years, *i.e.*, a whole generation, elapsed between the writing of the earliest Gospel and the events narrated. How is this? The chief reason undoubtedly lies in the peculiar nature of the expectations of the earliest Christians. In the words of Luke (xix, 11)

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' they thought that the Kingdom of God should immediately appear '. They were looking for a complete end of the present state of things, a Return of the Lord Jesus from heaven. It is probable that St. Paul was one of the first Christians calmly to contemplate the prospect of himself dying before the return of Christ (Phil. i, 20-24) ; he had come to see that the Interim was going to be longer and therefore more important than he himself and the other early believers had supposed, but in this he was a pioneer. Obviously belief in a near-approaching End was unfavourable to historical writing : the first Christians, both early believers and new converts, were looking forward not backward. There is no sign whatever that in early times the instruction of new converts was concerned with tales of what Jesus had done and said in Galilee or Jerusalem, and indeed such things, as we all know, are hardly alluded to in Paul's own correspondence. I do not say that Peter did not from time to time talk of things he remembered Jesus doing and saying when he, Peter, was going about with his Lord, but there is no sign that such talk was systematized in Peter's lifetime.

The tradition about the Gospel of Mark very well fits the internal character of the work and the conditions of the time. When in Rome in A.D. 64 Peter and Paul were martyred, and when at about the same time the older believers who had personal reminiscences of Jesus were dying off, Mark, who we are told had become Peter's interpreter—no doubt Peter was only fluent in his native Aramaic—had the great idea of turning the Gospel into a Biography, of setting forth in a narrative how Jesus had announced in Galilee the coming of the Kingdom of God and then had gone up to Jerusalem with His followers and His chosen associates. Possibly the work went on to tell something of the early days of the Believers in Jerusalem, but from some cause or other what has survived is imperfect at the end : we have the tale of the Crucifixion, but the narrative of Mark breaks off in the middle of a paragraph about the Resurrection of Jesus (Mark xvi, 8). The twelve verses which follow are a later addition, absent from the earliest MSS and versions.

It is now time to turn to the Gospels of Matthew and Luke and consider what we can gather from internal evidence about their composition. After a century of discussion some measure of agreement on this subject has been reached. When we arrange Matthew, Mark and Luke in parallel columns it is found that Mark is central. Matthew and Mark often agree in the order of the tales against Luke, Luke and Mark often agree in order against Matthew, but Matthew and Luke

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never agree in order against Mark, and what is true of the order is almost universally true of the wording. Moreover Mark is invariably more naïve, more diffuse in detail, less 'hierarchical'. The bits of Palestinian Aramaic (*Talitha cumi*, *Ephphatha*, *Abba*) which we find in Mark are left out by Matthew and Luke. In a word, Mark upon examination is seen to be a chief source on which both Matthew and Luke are based. In particular our 'Gospel of Matthew' has no sign of being a work of original reminiscence, such as an account of Jesus by an Apostle, a personal follower, would have been; and it is clearly a Greek work, not a translation from the Aramaic of Palestine. In fact, our Matthew may fairly be described as a 'second edition of Mark, revised and enlarged'. Certainly the tradition that our 'Gospel of Matthew' is the work of Matthew the Apostle is incredible.

The Gospel of Luke is a more independent work. As planned by its author it is the first volume of a more extended History of Christianity, the second volume of which survives as what is called the Acts, which leaves off with the arrival of St. Paul in Rome. Very possibly a third volume was contemplated, which would have recounted the martyrdom of Paul; but nothing of this survives, and indeed it may never have been written. There are signs both in Luke and Acts that the author had read the *Antiquities* of Josephus, a work published at Rome in A.D. 95: possibly he had had access to this work before it was published. On the whole, that Luke and Acts were written in Rome about A.D. 90 seems the most probable view. The Gospel of Matthew is clearly quoted in the letters of Ignatius, bishop of Antioch, written in A.D. 115, and it seems likely that it may have been compiled there some time between A.D. 80 and 90.

Matthew and Luke are both based upon Mark, but besides Mark they used independently a lost Greek document which modern scholars call Q. This document contained a large number of the Sayings of Jesus, including a few anecdotes leading up to a Saying, but it does not seem to have been a biographical sketch, such as the Gospel of Mark is. The letter Q stands for *Quelle*, the German for 'source'; formerly it was called 'the Logia', on the assumption that it was really the 'Hebrew' Gospel or compilation which Matthew the Apostle is supposed to have written. Very possibly Matthew may have written something or other in Aramaic, but the lost document used in our Gospels of Matthew and Luke was clearly written in Greek. The simplest proof of this is afforded by Matt. xxiv, 51, Luke xii, 46. Here we read of the untrustworthy steward whose master returns suddenly and punishes him.

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Both Matthew and Luke say that the master will cut him asunder (διχοτομήσει αὐτόν), and then his portion is to be with the unfaithful (ἀπίστοις). No doubt masters could torture their slaves, but this particular punishment would make any further 'portion' for the delinquent superfluous: obviously it is a translator's error for 'separate him', i.e. degrade the steward from his post and put him among those slaves who are reckoned untrustworthy. Many other instances might be given of noteworthy agreements of Matthew and Luke in Greek equivalents for words and phrases, which (if genuine) must have been spoken in Aramaic, the most noteworthy being ἐπιούσιον, the word we render 'daily' in the Lord's Prayer.

'Q', therefore, the common source of Matthew and Luke in the parts not taken from Mark, was a Greek collection of Sayings of Jesus. Unfortunately it is quite impossible to reconstruct it with any certainty. We only know some things that it did contain, viz. those which Matthew and Luke thought appropriate to insert in their own works, and we may further guess that some things found in Matthew only, or Luke only, may also have been taken from it. But we have no means of reconstructing Sayings which may have stood in Q which neither Matthew nor Luke thought fit to incorporate, nor do we know clearly what it did *not* contain. 'Q', in fact, remains nothing more than a convenient label, which we can affix to certain verses and paragraphs in the Gospels of Matthew and Luke to indicate that they come from a lost early collection of Sayings of Jesus.

It is most unlikely, especially in the case of Luke, that all the fragments of genuine historical reminiscence of Jesus come exclusively from Mark or from Q. Some things of the highest value may have been preserved by Matthew and by Luke singly through lines of tradition from which they alone have drawn. Thus each of the three Gospels known as Mark, Matthew and Luke, has some independent historical value, but where they are all telling the same tale they are not independent witnesses: their common source is Mark, and the statements of Mark are to be preferred above the later modifications which Matthew and Luke have introduced.

The Gospels of Mark, Matthew, and Luke, are called the Synoptic Gospels, because they are so much alike in contents and arrangement that it is possible to arrange them in parallel columns, in a *Synopsis*. If we attempt to add to the Synopsis the Fourth Gospel, called the Gospel of John, we get into difficulties. We shall find the fourth column generally blank when the first three are full, and when the fourth

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column is full the other three will be for the most part blank. Clearly we have here a fresh conception of Jesus, not a variant on the old theme.

This Fourth Gospel is in many respects peculiar. It is peculiar in style, so peculiar that, though distinguished by an excessive simplicity both in vocabulary and syntax, almost every verse even when detached from its context carries with it unmistakable evidence of its origin. This style is so individual that it is in several places impossible to distinguish where words ascribed to Jesus end and remarks of the Evangelist begin, a circumstance which would greatly detract from its usefulness as a historical document, even if the general presentation were superior to that found in Mark and the Gospels which follow Mark. Moreover it is not a question of merely enriching the outline given in Mark by the additional tales in 'John': the two presentations are often incompatible: if 'John' be historical, then Mark is not.

The Church tradition declares that this Fourth Gospel was the latest, that it was written by 'John' in extreme old age, *i.e.* some time after A.D. 95, and at Ephesus. There is also a tradition that there lived at Ephesus, at the end of the 1st century, a Christian known as John the Elder, who (with another personage named Aristion) was called 'a disciple of the Lord'. It is very generally now conjectured that the Fourth Gospel, together with the three short 'Epistles of John' in the New Testament, was the work of this Elder John, and not of John the Apostle the son of Zebedee.

The whole subject of this Fourth Gospel, its authorship and its historical worth, is highly controversial, not only from mere prejudice but also from the peculiar nature of the work itself. It undoubtedly contains single features which look like bits of genuine tradition, but it is difficult to resist the conclusion that, as a whole, the writer does not distinguish clearly between what his eyes saw and hands handled and what he had come to believe must have happened.

It may be considered that the historical reminiscences enshrined in the Gospels, particularly in Mark, are greater in extent and better in quality than might have been anticipated on general grounds. No one had any interest in recording the career of Jesus the Nazarene except the Christians, who were Christians because they believed Jesus to have risen from the dead, to have ascended into the heavens, and to be about to return in glory. The remembered words of Jesus had for them authority, whether they were moral maxims for present use or adumbrations of the glorious future, but they took little interest in the details of His earthly career. These Christians, at the end of the 1st century A.D.,

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were Greek-speaking folk, mostly of the less cultivated classes and mostly congregated in the greater cities bordering on the Mediterranean. In these circumstances it is remarkable that a narrative such as the ' Gospel of Mark ' should have been written and still more remarkable that it should have been preserved, for its Hero stands before us as a living human personality and its background is Palestinian, neither Greek nor ecclesiastical. Nothing but a strong element of personal reminiscence could have produced this very surprising result.

II

It is a curious though familiar circumstance that the Christian Church has *four* official accounts of Jesus Christ. It might have been anticipated that only one would have been accepted as authoritative. The fact that there are four suggests that each had already been received with favour, in different circles or localities, for some time, and so had acquired too much prestige either to be dropped or to be incorporated into a larger inclusive compilation. It is quite obvious that each of the Four is written as an independent work, whatever sources may have been used, and was not planned to be a member of a quartette.

That the oldest Gospel, that of Mark, was connected with Rome is asserted by the tradition and seems most probable. There are but few quotations made from it in early times, so that the fact of its survival at Rome side by side with Matthew, which is practically an enlarged second edition of it, suggests that it was too much rooted in Roman ecclesiastical use to be superseded. Matthew has certainly some connexion with a Jerusalemite tradition (see XXVII, 8, XXVIII, 15), yet it is based on Mark even for the story of the last days in Jerusalem. We look therefore to some place of origin which was likely to be in touch both with Rome and with Palestine. The first clear use of it is that made by Ignatius of Antioch, so it is a natural inference that it was compiled at Antioch and that it may have been brought to Rome by Ignatius himself in A.D. 115.

The Gospel of Luke is written in a rather more cultivated Greek than Matthew and much more so than Mark. It opens with a carefully phrased dedication to someone called ' the Rt. Hon. Theophilus ' (*Κράτιστε Θεόφιλε*), and it has been conjectured (*e.g.* by B. H. Streeter) that this personage may really have been Flavius Clemens, cousin of Domitian and husband of Domitian's niece Domitilla. There is reason to think that Domitilla and her husband were crypto-Christians, and

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Luke-Acts does seem to have been a work written to set forth the Origins of Christianity to this more cultivated circle of Roman society.

The Gospel of John appears to have reached Rome late: it is in the person of Gaius, an otherwise orthodox Roman presbyter, that the last note of opposition to its reception is heard. It is not quite certain that it was used by Justin Martyr, who wrote in Rome about 160. Justin's disciple, Tatian, certainly used a Harmony of our Gospels called the *Diatessaron*, a work which presupposes not only the existence but also the authority of all the Four; and to Irenaeus in A.D. 180 the Roman acceptance of Matthew, Mark, Luke and John, and of these only as authoritative, is an incontrovertible and established fact. We may therefore suppose that the existing Church system of accepting the Four Gospels as of equal and exclusive authority is based on the Roman custom of about the middle of the 2nd century A.D.

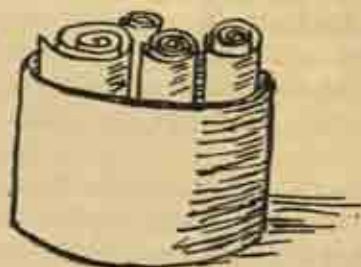
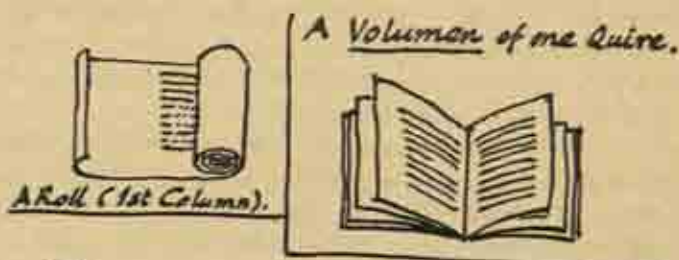
III

How were the Gospels preserved, and in what forms? The classical Latin for a 'book' is *liber*, but when the Gospels were written and for about a hundred years afterwards a book almost always took the form of a roll. During the third century A.D. another style came in, the proper name for which is *volumen*, a 'volume', that is to say a number of sheets folded in two and stitched together at the fold, like a modern bookseller's catalogue or a small pamphlet. A little later these 'volumes' were stitched together at the back, with or without boards at the sides, *i.e.*, like a modern bound book: the Latin name for this is *codex*. The Christians, who had special reasons for referring to particular passages in their sacred Books, found the 'codex' a convenient form: by the 4th century it was in general use. The only MS of any of the Four Gospels, so far as I know, which survives in roll-form is the papyrus fragments from Oxyrhynchus numbered 1228, which contains bits of John xv and xvi, and is assigned to the late 3rd century. But Oxyr. 208+1781, fragments of a 'volume' which contained the Gospel of John, are even earlier, and are probably the oldest surviving piece of any part of the Four Gospels.

Rolls were written in columns at right-angles to the length of the roll: a reader would fold up the columns he had read with his left hand, unrolling the further matter with his right: when he had finished he would roll up the scroll back again (*πρόξασ*, Luke iv, 20). Several rolls which belonged together, such as the Four Gospels or the various Letters of Paul, were kept together in boxes, shaped something like a

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band-box (in Latin, *capsa*). 'What have you got in your box?' said Saturninus the Proconsul to Speratus the Christian. 'Some rolls (*libri*)', replied Speratus, 'and letters of Paul, a just man'. This proves that at Carthage in the year A.D. 180, when this dialogue took place, the Christians still kept their sacred books in the old-fashioned form of the roll.



The use of vellum instead of papyrus came in about the same time as the change from the roll to the codex or bound book. A vellum book is practically indestructible by wear and tear, and so was suitable for Christian ritual use, in which the public reading of sacred scriptures has always held a prominent place. No doubt vellum was always rather expensive and somewhat heavy, and an unlicensed association, such as the Christian Church was until 313, was under little temptation to

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multiply books in this durable style. But two MSS of the whole corpus of the Canonical Writings dating from the generation immediately following 313 still survive. These are the Codex Vaticanus, known as B, and the Codex Sinaiticus (now at Leningrad), known as \aleph .*

Such Pandects, as they are called, must always have been rather rare. They must either be huge tomes, such as B and \aleph are, or the writing must be minute, as in the Latin Bibles which came to be multiplied in the 13th century. As a rule the New Testament was written in three codices, one containing the Gospels, one the Pauline Epistles, and one for the rest (Acts, &c.).

Among the oldest fragments of Gospel codices at present known are the papyrus leaves numbered Oxyrhynchus 2 and Michigan 1570, each of which may be safely put into the 3rd century and be regarded as contemporary with Oxyr. 208+1781 (see above). Both are fragments of a codex, not of a roll, and Oxyr. 2 (which contains the greater part of Matt. 1, 1-20) seems to be the beginning of a volume. It is likely that when complete they only contained a single Gospel, though they may have been kept in a *capsa* with 'volumes' containing the other canonical Gospels.

After the 4th century, vellum codices of the Gospel, more or less complete, survive in considerable numbers. Among the earliest are the Washington (or Freer) Gospels, known as W, which came from Egypt and may be safely assigned to the 5th century; and Codex Bezae at Cambridge, a MS containing the Gospels, some of the Johannine Epistles, and the Acts, in Greek with a Latin rendering on the right-hand pages, which also appears to have been written not later than the 5th century.

Soon after the middle of the 2nd century Christianity began to spread into non-Greek-speaking lands, and we find in two instances the Gospel translated into the vernacular, *i.e.* into Latin and into Syriac.

The earliest Christianity of Rome was Greek-speaking, but in Roman Africa everyone spoke Latin, and it is highly probable that the earliest Latin translation of Christian Scriptures was made by the Christians of Carthage. This 'African Latin version', as it is generally called, was extremely literal, almost a word-for-word rendering of the Greek, and therefore very valuable to the modern scholar, as it is generally possible to reconstruct the wording of the Greek from which it was translated. One fragmentary MS of this translation, almost (it

* So called by its discoverer C. Tischendorf. \aleph is the first letter of the Hebrew alphabet.

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is believed) in the original form, survives in Cod. Bobiensis, now at Turin and known as *k*. It contains the latter half of Mark followed by the first half of Matthew, and is probably to be dated in the 4th century. Akin to *k* is Cod. Palatinus (*e*), now restored to Trent, which contains John and Luke and a good deal of Matthew and Mark, but its text is not so pure, and it was probably written nearly a century later.

Aramaic is a language akin to Hebrew, and dialects of Aramaic were spoken all over the Orient from Antioch and Palestine to the Tigris, a region sometimes known vaguely as 'Syria'. Syriac was the dialect of Aramaic spoken at Edessa, the capital of a little principality east of the Euphrates and due northeast of Aleppo. Christianity reached Edessa about A.D. 170, but at first the Gospel was only translated into Syriac in the form of the *Diatessaron*, a mosaic from all the Four Gospels. Somewhat later, about A.D. 200, the Four Separate Gospels were translated into Syriac and of this translation two MSS survive, one known as the Sinai Palimpsest (syr. *s*), the other as the Curetonian (syr. *c*). No MS of the *Diatessaron* in Syriac is extant, as this work was suppressed by ecclesiastical authority during the 5th century. Syr. *c*, now in the British Museum, is called after its first editor, Dr Cureton: it came from the great Syrian monastery in the Nitrian Desert (west of Cairo), and is not later than the 5th century. Syr. *s* is still at the monastery in Sinai, but it came there from a place half-way between Antioch and Aleppo. It is a palimpsest, *i.e.* it was taken to pieces (before it arrived at Sinai) and the old writing washed out. This was done in the year 778, in order to transcribe upon the leaves some lives of female saints, but the old writing is still mostly decipherable, and that seems to belong to the 4th century.

The Greek codices B, κ , and D, the Latin codex *k*, and the Syriac codex syr. *s*, stand in a class by themselves as the oldest and also on the whole the purest texts of the Gospels. Their witness requires to be corrected here and there by later texts, which seem occasionally to have preserved better readings. But, speaking generally, it is a question of minutiae. The two outstanding 'various readings' of general interest are: (1) the appendix added to complete the Gospel of Mark ([Mark] xvi, 9-20), which is found in most MSS, but not in B, κ , *k* or syr. *s*; (2) the story of the Woman taken in Adultery, which is no part of the Fourth Gospel and is absent from most ancient MSS, but it is found in D. The story seems to be one of a series of Sayings of Jesus, inserted in an ancient copy of the Gospels from some extra-canonical source, possibly from the elusive and mysterious 'Q' itself. Who knows?

Neolithic Camps

by E. CECIL CURWEN

IT is extremely difficult to eradicate erroneous popular beliefs. Among such should be numbered the tendency hastily to attribute prehistoric hill-forts either to the Stone Age or to the Romans, most of such forts having in all probability been reared by the people of the Early Iron Age. The rapid progress of British prehistoric archaeology during the last two decades has shown this clearly, but it has also shown that the popular belief in the existence of neolithic camps is justified, though not in the specific instances that were expected.

KNAP HILL

In 1908 and 1909 Mr and Mrs B. H. Cunnington carried out excavations in Knap Hill camp¹ (plan, fig. 1), between Marlborough and Devizes. They were struck with the fact that the rampart, which is deficient on the steepest side of the hill, is interrupted by at least six gaps, opposite each of which the ditch is broken by a causeway of undisturbed chalk—evidently an intentional feature. The sections of ditch between the different causeways vary from 42 to 122 feet in length, and the causeways themselves are 18 feet wide. In the filling of the ditch they found a strange, new type of pottery together with evidence of local flint-knapping, pieces of sarsen, and other relics of occupation. The pottery was rather coarse, gritty and hand-made, and included at least one round-bottomed bowl; it was also characterized by oblique incised lines on some of the rims, and by bosses or lugs. In several cases groups of shards were found in association with 'nests' of flint flakes, cores and hammer-stones. Mr and Mrs Cunnington came to the conclusion that these pieces of pottery 'cannot be of a later date than the Bronze Age, and it is quite likely that they are Neolithic'. They also added that 'until some distinguishing characteristic is recognized between undecorated pottery of the Bronze and Neolithic periods in

¹ 6 inch O.S. (Wilts), 35 sw. See *Wilts Arch. Mag.* XXXVII, 42.

PLATE I



WINDMILL HILL, WILTSHIRE, LOOKING WNW
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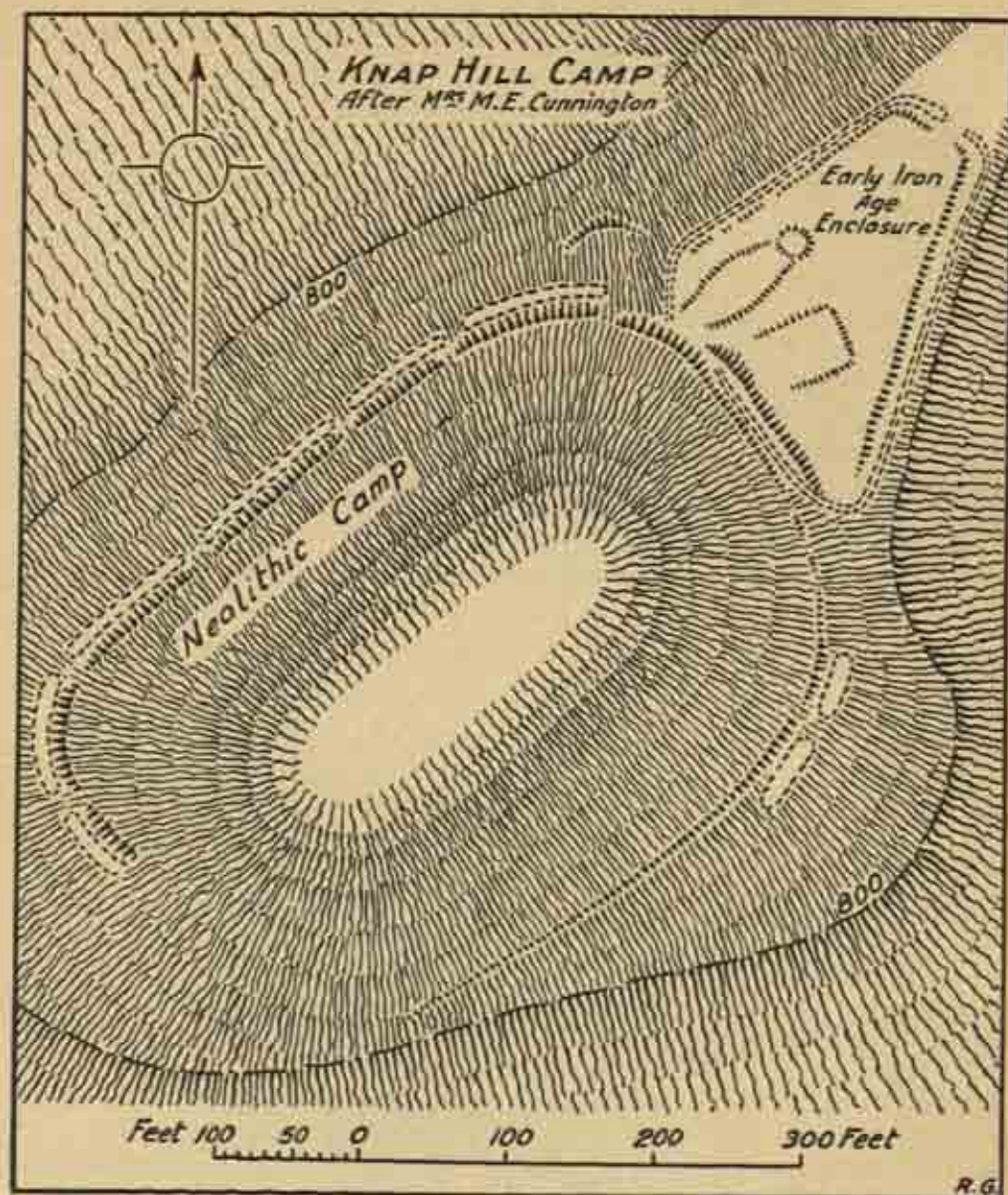


FIG. 7. KNAP HILL CAMP

With the exception of figs. 1, 5, 7, and 10 the plans are reproduced on a uniform scale

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Britain, if indeed there be any such characteristic, it is impossible to form an opinion as to which period the pottery belongs'.²

WINDMILL HILL, AVEBURY

There the matter remained until 1925, when Mr Alexander Keiller began his remarkable excavations in the camp on Windmill Hill, near Avebury (Wilts),³ to which the late Rev. H. G. O. Kendall had drawn attention. This hill had long been famous as a hunting-ground for flint implements, but it also has the remains of a camp, much reduced by ploughing, and in the same area are several large Bronze Age barrows. Mr Keiller has carried out excavations in the camp annually since 1925 with remarkable results. His reports are unfortunately not yet published, but he has most generously allowed me to reproduce here the information he has himself given me, together with a plan of the site, based on his survey (fig. 2). As stated above, the defences had been much reduced by ploughing, and the ditches filled up with silt, but Mr Keiller traced their original outline by means of a probe with the help of which he was able to distinguish between the undisturbed chalk and the rubble filling of the ditches. His plan based on these findings shows that the camp consisted of three not quite concentric rings of ditches, in most cases accompanied by the remains of ramparts on the inner side, and with considerable areas of the natural ground-level separating each ring of the defences. But the most remarkable feature, as at Knap Hill, is the presence of numerous causeways of undisturbed chalk which interrupt all three ditches at short intervals. (Plates I-II).

Mr Keiller has been systematically clearing out the filling from the ditches, laying bare the causeways, and recording the exact depth and position of every object found. The site is proving extremely prolific, the finds including pottery, implements of flint, bone and antler, grain-rubbers, saddle-querns and carved chalk. But the outstanding value of this site lies in the stratification of the finds which Mr Keiller is recording with meticulous care. The result has been to throw much more light on the study of the Neolithic period.

He is thus able to classify the different varieties of pottery found according to the depths at which they constantly occur in his sections, the oldest being, of course, the lowest. All the pre-beaker vessels have exclusively round bottoms. There are bowls of thin, hard, smooth, black ware, with thin upright lips and no lugs or shoulders of any

² *Wilts Arch. Mag.* xxxvii, 57.

³ 6 inch O.S. (Wilts), 28 NW.

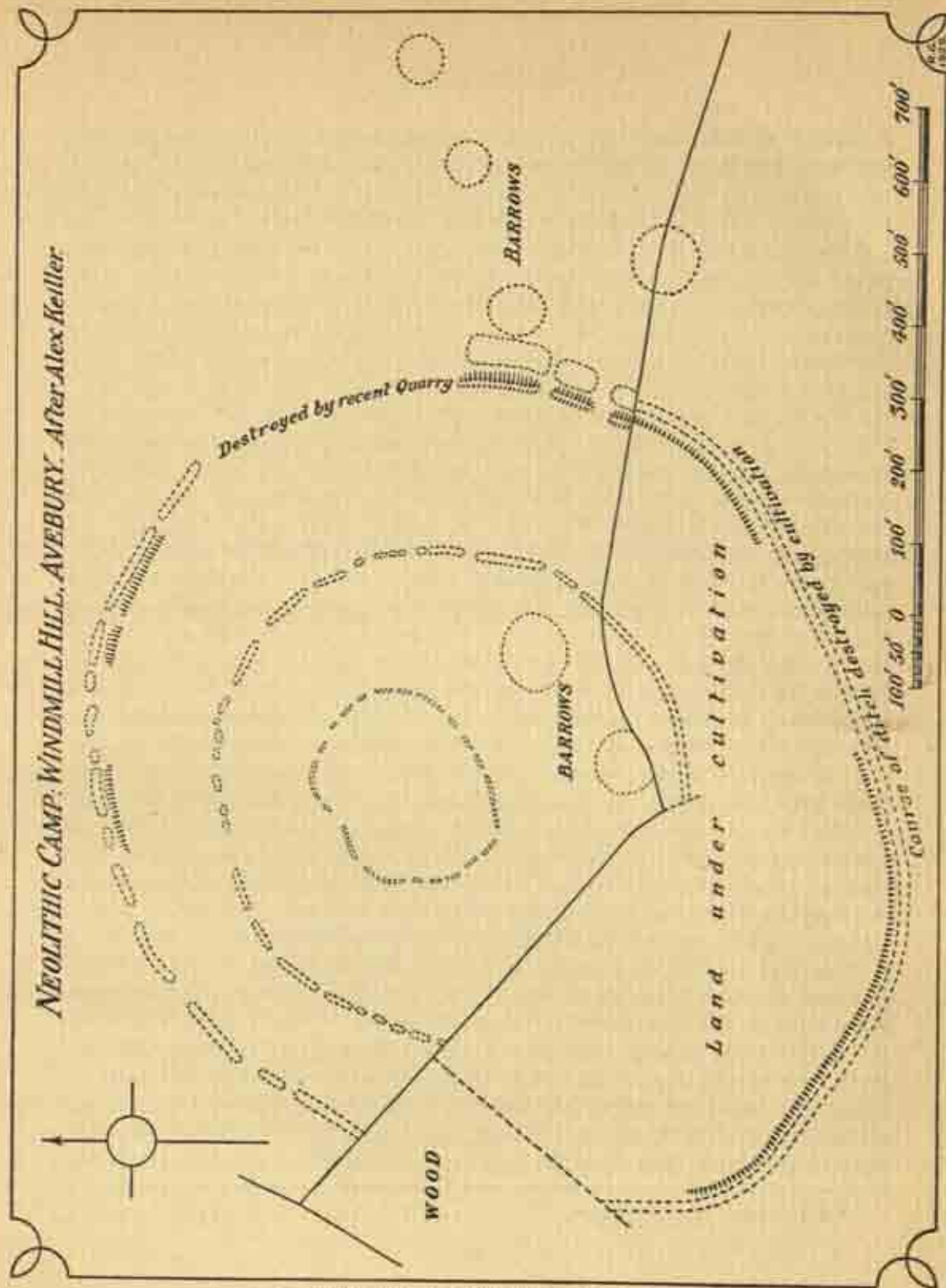


FIG. 2. NEOLITHIC CAMP, WINDMILL HILL, AVEBURY

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sort, and no ornamentation. Other vessels possess lugs for handles; some of these are plain, while others are found vertically perforated, and ornament appears in the form of oblique parallel scorings on the rims (as at Knap Hill), and various forms of pin-prick decoration. In yet other vessels loop-handles occur, but no shoulders or carinations. All these varieties of pottery are exclusively found below a sterile layer in which no relics occur. Above this sterile layer is found the highly decorated ware of which the West Kennet long barrow pottery and the Mortlake bowl are well-known examples. In this type the entire exterior surface of the vessel is covered with ornamentation produced by multiple impression of various objects, chiefly the articular ends of the long bones of birds, as Miss Liddell has recently shown.⁴ Closely associated with this comes the familiar beaker, and Mr Keiller tells me that his stratification shows that the West Kennet type is an early contemporary of the beaker, the latter surviving the longer of the two. Above this is nothing but odd scraps of Roman and other late varieties.

The varieties of pottery found below the sterile layer have been collectively described as the Windmill Hill type in contradistinction to the West Kennet, Mortlake or Peterborough type, which, as we have seen, is only found above the sterile layer. This shows that the distinction between these two classes of pottery is not merely a question of origin in different parts of Europe as Mr Thurlow Leeds has suggested, but it is also a matter of chronological sequence. The duration of time represented by the sterile layer cannot, perhaps, be determined with any certainty, but, whatever this may have been, the presence of the layer constitutes an absolute time-barrier between these two varieties of pottery—between the Neolithic period below and the Bronze Age above. Further discussion of the pottery will be deferred till examples from other sites have been described.

The relation of Mr Keiller's flint implements to his scheme of stratification is also of interest. Polished flint axes occur below the sterile layer, and are associated with the loop-handled pottery. Arrowheads, leaf-shaped, lozenge-shaped and chisel-pointed (*petit tranchet*), occur at all levels abundantly, but the barbed-and-tanged variety is confined to the beaker levels. One-barbed arrowheads are found lower than the barbed-and-tanged, but not in the lowest levels. Flint saws, scrapers of all shapes, and knives (*dos rabattu*) with straight or curved blades, are extremely common at all levels. The saws consist of simple flakes with

⁴ ANTIQUITY, 1929, III, 283-91.

NEOLITHIC CAMPS

one or more edges worked up into minute serrations, 25 or 30 to the inch, some of them bearing a narrow line of lustre which results from the cutting of wood. Other similar flakes have edges that have been irregularly splintered by cutting hard substances. Besides these are small flint picks like 'Thames picks', but smaller, and very numerous hammer-stones. 'Fabricators' are rare, borers very rare, and calcined flints ('pot-boilers') exceedingly scarce. Many of the flint tools had been damaged by fire.

Implements of red deer's antler include the familiar picks, and also rakes with two or even three prongs. There is also a remarkable series of combs, each formed from the beam of an antler by cutting one end longitudinally so as to produce a ring of 'teeth' surrounding the medullary canal (plate III). The purpose of these combs is assumed to have been the same as that of the very similar Esquimaux *kúmotin*, which is used for combing loose hairs from deer-skins.⁵ Pins and awls of bone are numerous, the latter probably having been used in the ornamentation of pottery and in perforating the lugs. One burnisher made of bone resembles those hitherto only found in the ditch of the Avebury 'temple'. () () () () () () () ()

Evidence of agriculture is supplied by very numerous grain-rubbers, both whole and fragmentary, consisting of top-stones and lower stones of saddle-querns. Perhaps it would be too much to suggest that certain pieces of chalk bearing scoring and rudimentary patterns are indicative of aesthetic feeling, but superstition is evidenced by a nicely carved chalk phallus which may be compared to a bone example found at the Trundle (referred to below).

A study of the animal bones from the excavations indicates the fauna of the time. By far the commonest was the ox, a small beast with rather long horns, and quite distinct from the breed which prevailed in the Early Iron Age. The other animals include sheep, goat, pig, red deer, roe deer, two or more breeds of dog, fox, hedgehog, and some other small animals. Even the dogs' droppings were recovered, their form having been preserved by impregnation with lime salts, the result of a diet of bones. The absence of horse in all neolithic sites so far examined is remarkable.⁶

Finally, a study of the charcoals yields a picture of the contemporary

⁵ J. W. Powell in the *Ninth Annual Report of the Bureau of Ethnology* (Washington, U.S.A., 1887-8), 300-1. Reference kindly supplied by Mr Keiller.

⁶ Horse was found at Peterborough with pottery of Mortlake type and beakers. *Archaeologia*, LXII, 335.

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local trees, and the types of land-snails present betray the fact that at that period the climate was moist.

ABINGDON

In 1926 Mr Thurlow Leeds began the examination of what must originally have been a neolithic promontory-fort situated on a low-lying tongue of land beside the Thames near Abingdon.⁷ Across the base of the promontory the remains of a ditch, characteristically interrupted by several causeways, were discovered during the process of digging gravel. In the ploughed field to the north of the modern road is a dark line in a slight hollow which may possibly represent a second and parallel line of defence across the neck of the promontory. The gradual destruction of the neolithic ditch by the gravel-diggers has been watched and investigated by Mr Leeds and his helpers, and very much useful material has been recovered. In the main the finds agree closely with those of Mr Keiller from Windmill Hill, but in the pottery there is a slight difference in that a large proportion of the vessels possess a slight shoulder or carination from two to three inches below the rim, with a slightly hollowed neck and a tendency for the rim to be heavy and everted. Perforated lugs and loop handles are common, together with ornamentation resembling that at Windmill Hill, viz. oblique scorings on the rims and various forms of pin-prick decoration. While the majority of these vessels had round bottoms, a few flat bottoms were found.

The resemblances between this pottery and that from Windmill Hill are numerous and marked, but the differences noted above are sufficient to warrant the type being placed in a sub-group and called the Abingdon type.

The other finds at Abingdon resemble those from Windmill Hill. Polished flint axes, often rechipped, arrowheads of leaf and lozenge shape, part of a flint dagger and of a finely worked, curved flint knife of rare type, scrapers and flint saws have all been found, together with hammer-stones, grain-rubbers, bone awls and antler combs.

WHITEHAWK CAMP, BRIGHTON

In January 1929, the writer was associated with Mr R. P. R. Williamson in carrying out excavations for the Brighton and Hove Archaeological Club in Whitehawk Camp (plan, fig. 3) on the Brighton

⁷ 6 inch O.S. (Berks), 10 NE. Described in *Antiq. Journ.* VII, 438-64; VIII, 461-77.

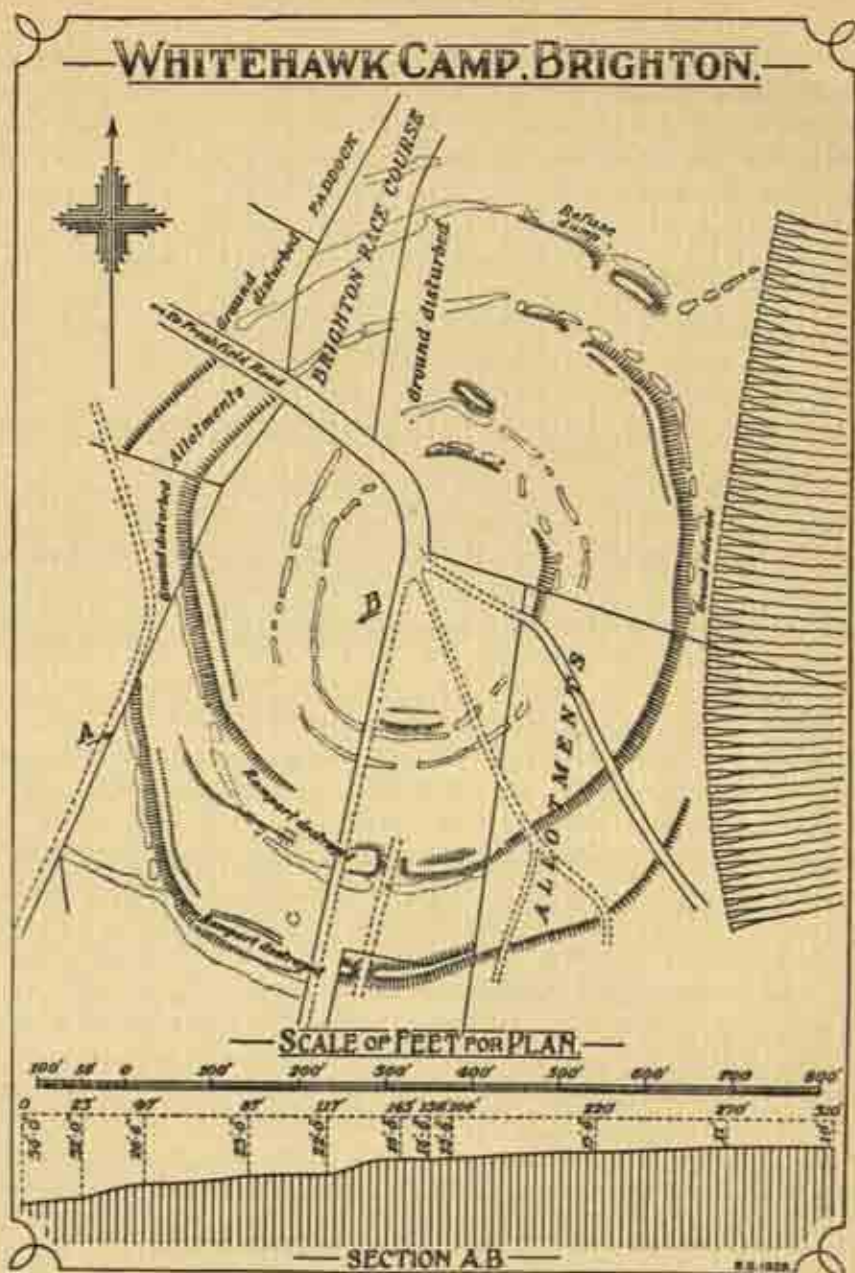


FIG. 5. WHITEHAWK CAMP, BRIGHTON

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race-hill.* This was originally a large camp like that on Windmill Hill, Avebury, and consisted of four concentric rings of ditches interrupted by causeways and separated from one another by stretches of the natural ground-surface (see plan). On the east side of the ridge, where the ground falls away very abruptly and steeply the outermost line of defence is deficient, while on the northeast a radially placed ditch, also interrupted, cuts off the triangle of level ground between the third ditch and the brow of the declivity, a somewhat similar arrangement being observed on the southwest of the camp. Unfortunately the site has suffered sadly under the encroachment of allotments, and some of it has been levelled in connexion with the race-course. Being situated, too, right on the edge of a large town, the danger of further destruction by building is ever present.

About half of the circuit of the two innermost ditches has been deliberately levelled and is therefore quite invisible on the surface. In making the accompanying plan the course of these lost ditches was recovered by means of percussion of the ground with a rammer—a process conveniently referred to as ‘bosing’,[†] and one which enables a distinction to be made between a subsoil of undisturbed chalk and the loose material filling a ditch or pit. Bosing over the former gives a sound like ‘thud’, while over the latter it resembles ‘thoomp’. Not only can the limits of hidden ditches be mapped out in this way with a line of pegs, preparatory to surveying, but an apparent causeway interrupting a visible ditch can be tested as to whether it really does consist of undisturbed chalk or whether it is the result of more recent interference by which a section of the rampart has been thrown into the ditch. The ‘boser’ will almost always decide this point, and for this reason the writer invariably uses this method for testing the solidity of alleged causeways in supposed neolithic camps.

The ‘boser’ can easily be made out of a narrow cylindrical tin filled with about 8 lbs. of lead, a short piece of iron piping being embedded in the lead to serve as a socket for an ash handle. This is an improvement on a navvy’s rammer as the latter has a wide base; the narrower the base, the more concentrated is the blow, and the clearer is the percussion note obtained, especially on a sloping surface. The

* 6 inch o.s. (Sussex), 66 sw. Report to appear in *Sus. Arch. Coll.* LXXI (August 1930).

[†] See *ANTIQUITY* (1928) II, 258; (1929) III, 231. The term is derived from a northern Irish provincialism, ‘bose’ (? spelling), an adjective meaning ‘hollow-sounding’.

NEOLITHIC CAMPS

ideal would be to have a hemispherical base, but this is not easily obtained. An instrument of this type is absolutely invaluable to the field-worker in chalk country; the writer has not yet had sufficient experience of it on other soils to be able to gauge its usefulness there, but it is probable that it will serve to distinguish compact and loose soils under most circumstances. Its chief drawback is its weight when carried, but this can very largely be obviated by having a sling made for it: the base of the tool can rest in a leather socket which is slung from the shoulder by a loop of 4-inch webbing, the handle being steadied by passing through a small loop attached to the webbing higher up.

In using this instrument the handle should not be gripped by the hand at the actual moment of impact with the ground, as that jars the arm and damps the vibrations. The boser should either be allowed to drop from the hand or else be thrown down with a flick of the wrist and caught again on the rebound. The resulting vibration is appreciated not only by the ear as 'thud' or 'thoomp', but by the feet as well. The method is useless on cultivated ground as the boser simply sinks into the mould without producing any vibration, and it is also defeated if the undisturbed chalk is covered by a *deep* layer of mould under the grass, as this itself yields a booming note.

The plan of the ditches at Whitehawk Camp was worked out in this way, and the solidity of the causeways verified. Subsequent excavation confirmed these findings. Parts of the three innermost ditches were opened up, yielding a wealth of neolithic pottery and associated remains, very closely resembling those already described. At least 80 lbs. of neolithic pottery were recovered in five weeks' digging by two men. Most of this came from a filling of black vegetable mould above the primary chalk silting, though fragments of the same type of pottery occurred also in the latter, proving that the pottery was coeval with the construction of the camp. In general the characteristics of the vessels resemble those of the Abingdon type, except that loop handles and flat bottoms were entirely absent. Vertically perforated lugs and oblique scorings on the rims were common, together with flutings, parallel scorings on the body, finger-nail impressions and even multiple triangular impressions. These latter almost suggest a step in the direction of the West Kennet type, but no true West Kennet shards were found. The majority of the vessels have slight carinations, and one closely resembles one of the Scottish neolithic bowls described by Mr Callander.¹⁰

¹⁰ J. Graham Callander, 'Scottish Neolithic Pottery', *Proc. Soc. Antiq. Scotland*, LXIII, fig. 37 (p. 56).

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Though great care was taken in digging by levels the pottery was found not to be in any way stratified, parts of the same or similar vessels occurring both high up and low down in the filling. This probably indicates contemporaneity of the various forms of vessels found, and suggests that the site was occupied for a short time by a large population.

Here again the same types of flint implements were found. These include re-chipped polished flint axes, arrowheads of leaf and lozenge form, one *petit tranche*, scrapers, saws, bone awls, grain-rubbers, and a huge chalk weight, perforated at one end and weighing 32 lbs. Other smaller perforated pieces of chalk may perhaps have been loom-weights. The study of the animal bones, charcoal, and mollusca give results in agreement with those obtained at Windmill Hill.

THE TRUNDLE, GOODWOOD¹¹

The interest of this site (plan, fig 4) lies chiefly in the fact that an Early Iron Age hill-city has been constructed over a neolithic camp, the existence of which was not suspected until it was revealed by an air-photograph in 1925. The writer carried out some excavations there in 1928 which showed that the later hill-city was occupied from late Hallstatt times till the beginning of the La Tène III (say, 500-50 B.C.). The plan of the neolithic ditches was worked out by bosing, as at Whitehawk, and these results were confirmed by the digging. These defences consist of an inner ring, relatively strong, with a second line in two pieces overlapping one another and inclined to straggle. A loop of a third and outermost ditch is traceable outside the Early Iron Age ramparts on the north, from which it seems likely that the latter overlay the former for the rest of the circuit of the camp. All the neolithic ditches are interrupted by numerous causeways, opposite some of which there are corresponding gaps in the ramparts. (Plate IV).

It is probable that not enough digging has yet been done in the neolithic ditches at the Trundle to justify generalization as to the type of objects found there. One can only say that so far the pottery resembles the earlier of the Windmill Hill types, though perforated lugs, loop handles and carinations are absent, and ornament sparse (plate VIII). No polished axes or arrowheads have yet been found—in fact, very little worked flint at all, though flakes are fairly numerous, including flint saws. A beautifully carved bone phallus shows signs of having been severed by means of a flint saw. Grain-rubbers, bone awls, and two pieces of artificially

¹¹ 6 inch o.s. (Sussex), 48 NW. See *Suss. Arch. Coll.* LXX, 32-85.

THE TRUNDLE
Neolithic features in red

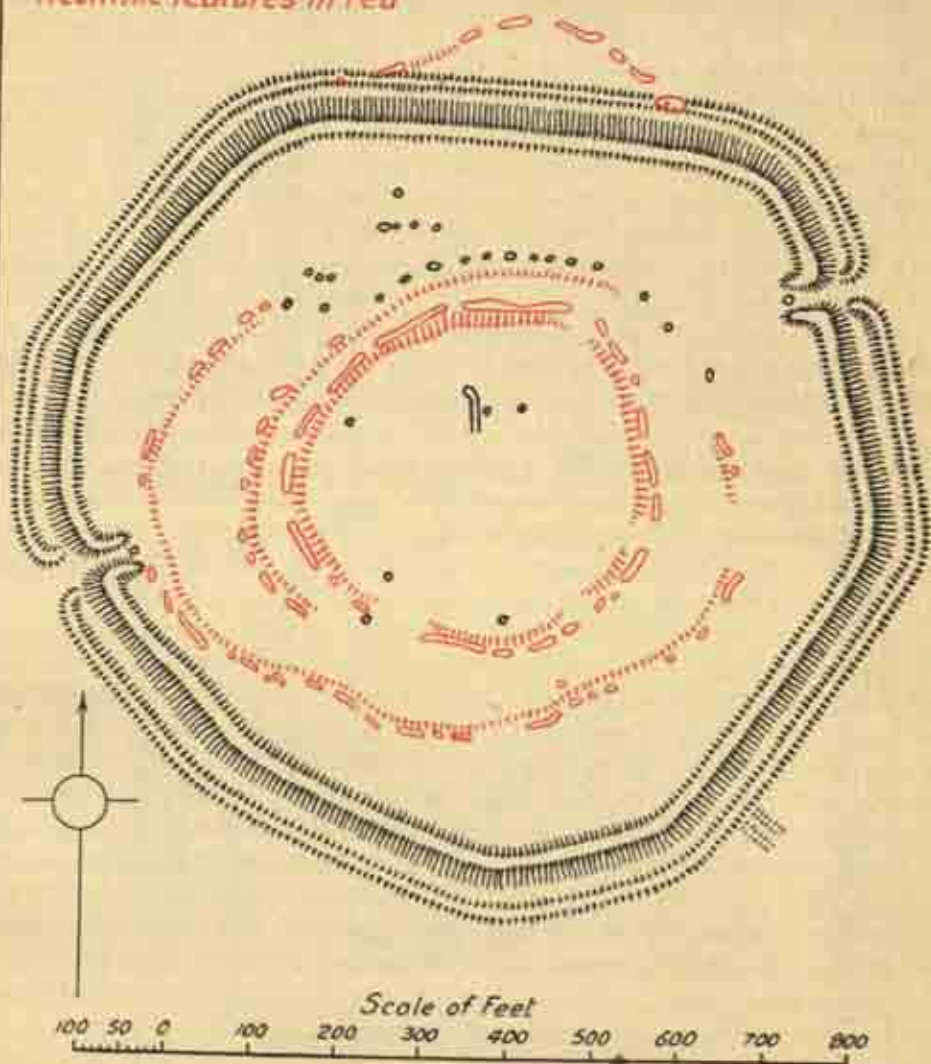


FIG. 4. THE TRUNDLE, GOODWOOD, NEOLITHIC AND EARLY IRON AGE CAMPS

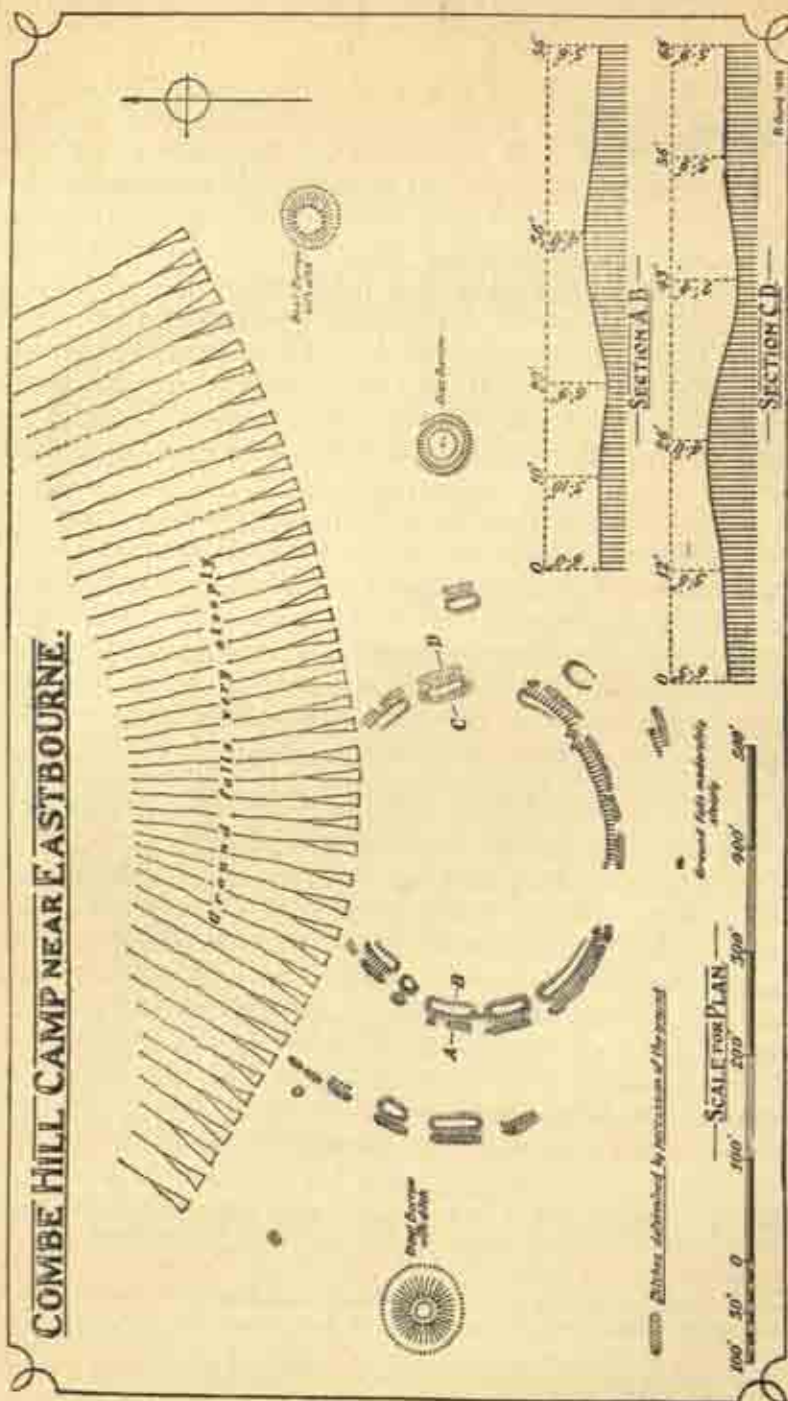


FIG. 3. COMBE HILL CAMP, NEAR EASTBOURNE.
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NEOLITHIC CAMPS

scored chalk resemble similar specimens enumerated above, and the findings with regard to flora, fauna and climate agree with those obtained at Windmill Hill. One chalk cup and a fragment of another resemble specimens from Windmill Hill and from the flint mines at Cissbury and Grime's Graves.

When examining the point at which the loop of outer neolithic ditch disappears under the Iron Age rampart the skeleton of a young woman was discovered buried in a crouched position under a small pile of chalk blocks. Nothing was found with the skeleton, but the position of the burial was interesting because the body has been deposited in a shallow oval grave just below what was at that time the surface of the silting filling the neolithic ditch, and it had subsequently been further buried under the outer of the two Iron Age ramparts. The burial, which can scarcely be later than Early Bronze Age in date, must therefore have been considerably later than the time of the occupation of the camp, for the ditch had already silted up to the level at which it remained throughout the Bronze Age.

This completes the list of neolithic camps which have so far been examined by the spade. A few others, however, show the superficial characteristics associated with proved neolithic sites, and these will now be considered.

COMBE HILL, NEAR EASTBOURNE

The curious little camp on Combe Hill (plan, fig. 5),¹² near Eastbourne consists of an inner ring, deficient on the steep north side of the hill, with portions of a second line at a few yards distance to east and west. All the ditches are interrupted by causeways at short intervals, and bosing has shown that these are of undisturbed chalk and are not modern disturbances of the ground. Most of them have corresponding gaps in the ramparts. The camp is situated on a plateau between two slight eminences to east and west, the ground falling precipitously to the north and less steeply to the south. Mrs Keiller first drew the writer's attention to the possibility of this camp being neolithic.

ROBIN HOOD'S BALL, SHREWTON

Near Robin Hood's Ball in the parish of Shrewton, Wilts,¹³ is a small camp (plan, fig. 6) consisting of two concentric rings of interrupted

¹² 6 inch O.S. 79 NE. See *Suss. Arch. Coll.* LXX, 209-11.

¹³ 6 inch O.S. (Wilts), 54 NW.

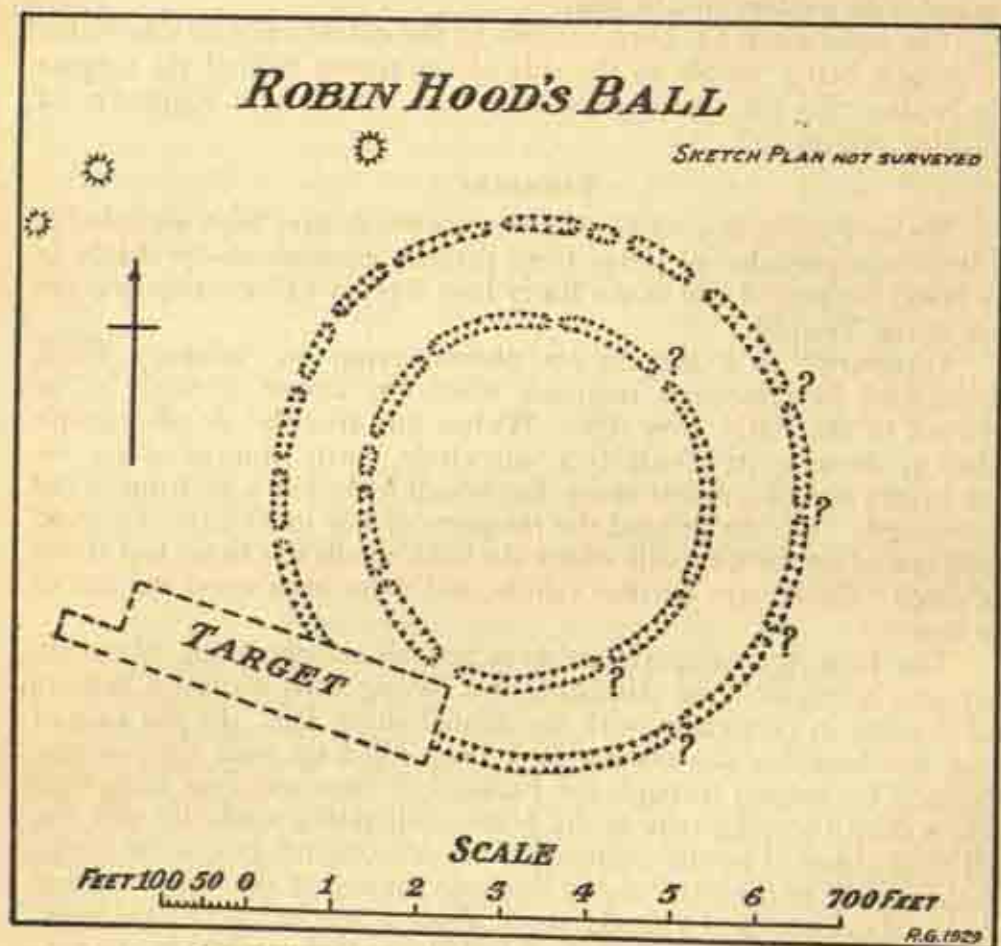


FIG. 6. NEOLITHIC CAMP NEAR ROBIN HOOD'S BALL, SHREWTON

NEOLITHIC CAMPS

ditches. The accompanying sketch-plan is not a survey, but is based on notes supplied by Dr Eliot Curwen. The causeways in this case have not been tested by bosing, and some which are open to doubt are marked with a query on the plan.

The outer ditch has been cut into by the construction of rifle-butts, its section being visible in the side of the trench behind the targets. Mr Keiller tells me that objects have been found here suggestive of neolithic occupation.

YARNBURY

We now come to a series of three sites which have been occupied in at least two periods—to judge from surface appearances—probably in the Neolithic period and in the Early Iron Age, as we have seen was the case at the Trundle.

Yarnbury¹⁴ is a magnificent plateau camp on Salisbury Plain, surrounded by enormous ramparts which are almost certainly to be referred to the Early Iron Age. Within this area the air-photograph (plate v) shows quite distinctly a faint circle, partly obliterated on one side by the site of a recent sheep fair which looks like a gridiron in the photograph. On the ground the ramparts of this inner circle are most easily traced on the west side where the bank stands five to six feet above the ditch. Causeways are also visible, and these have stood the test of the boser.

The Iron Age ramparts are breached by six entrances, of which only one is original, the remaining five having been made by farmers and drovers in connexion with the annual sheep fair. In the case of these five breaches the ditches have been filled up with the material obtained by cutting through the banks, but these spurious causeways yield a deep booming note to the boser, contrasting markedly with the dull thud obtained on the causeway of the one original gate of the camp.

In the middle of the latter and in line with the end of the fosse on either side is a short length of a smaller ditch, about 27 feet in length; the boser reveals that it is actually about three feet longer than appears to the eye. This ditch may perhaps have been a feature of the Iron Age gateway, comparable to a pit somewhat similarly placed in each entrance at the Trundle (Goodwood); but it is also possible that it may be the sole relic of an outer ring of the neolithic camp, all the remainder of which may have been overlaid by the later Iron Age ramparts.

¹⁴ 6 inch O.S. (Wilts), 59 NE. Described by Crawford and Keiller, *Wessex from the Air*, 68-71.

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SCRATCHBURY

Scratchbury¹⁵ (plate vi) is another immensely strong hill-fort of Early Iron Age type, some 2½ miles from Warminster. Here again within its area traces of an inner enclosure can be seen, the northern part being preserved best, and here several causeways are distinctly visible in the air-photograph. These causeways have been tested by the boser and proved solid. The most peculiar feature is that the inner camp seems to be semicircular in plan, the straight side being prolonged westwards till it disappears under the Iron Age ramparts. This straight side appears to be a ditch and not a lynchet as it was first thought to be, but in this part the ground is covered with too great a depth of mould to make bosing certain.

RYBURY

Rybury camp¹⁶ (plate vii and fig. 7), situated just above the Early Iron Age village at All Cannings Cross, Devizes, presents an interesting complex of earthworks. It is situated on an abrupt eminence connected by a narrow neck with higher hills to the north, and by another narrow neck with a sharply rising knoll to the south. This knoll is also approached by gentle spurs running up from south and east. The extreme summits both of Rybury Hill and of the southern knoll have been extensively dug over in recent times—I understand that a particularly hard seam of chalk was being sought. The defences of Rybury Camp are relatively weak, and consist of a single vallum with a ditch on the *inner* (i.e., upper) side. This peculiar arrangement is uncommon in camps, but can be exactly paralleled in the case of Wolstanbury in Sussex where the writer was excavating in October 1929¹⁷. Sections dug through the ditch at Wolstanbury proved that this camp was constructed not later than the La Tène I period (400–250 B.C.) of the Early Iron Age, so that it is quite likely that Rybury may be assigned to the same period, in which case it would be contemporary with the All Cannings Cross village. At Rybury there is also an inner ring, but it has been so much disturbed by the recent chalk-diggings that even the boser failed to detect the presence or absence of causeways that might indicate a neolithic date. That we must not hastily assume it to be neolithic is,

¹⁵ 6 inch O.S. (Wilts), 52 NW and SW. Described by Crawford, *Air Survey and Archaeology* (2nd edn.), 36.

¹⁶ 6 inch O.S. (Wilts), 35 NW.

¹⁷ 6 inch O.S. (Sussex), 52 NE. The report will possibly appear in *Suss. Arch. Coll.* LXXI (August 1930).

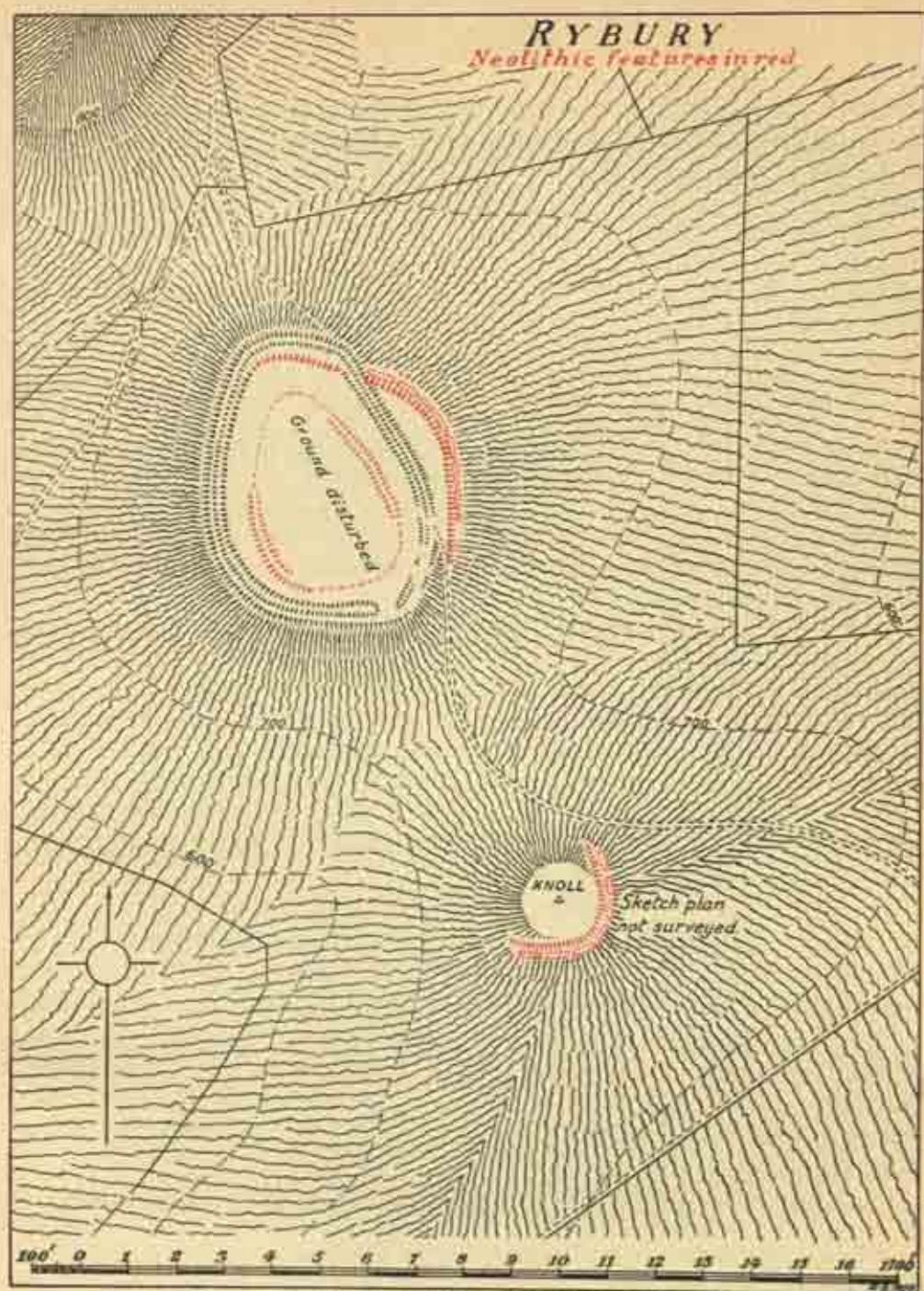


FIG. 7. RYBURY; SUPERIMPOSED CAMPS OF TWO PERIODS

ANTIQUITY

however, shown by the fact that Wolstanbury also has an inner ring which has turned out on excavation to be apparently of the same period as the outer ring, no evidence pointing to a neolithic date having been found.

At Rybury, however, there are in addition two other lines of defence outside the supposed Iron Age rampart. One defends the east side of the hill and runs under the later rampart at the point where the latter makes a sharp bend to follow it. The ditch of this defence is interrupted in several places by visible causeways which have also stood the test of the boser. The other line of defence curves round the east and south sides of the crest of the southern knoll, evidently being intended as an outwork to the main camp, and so placed as to defend the knoll against approach along the easy spurs on the east and south. The ditch here, too, is interrupted by at least six causeways which are positive to the boser. There can be little doubt that these interrupted ditches are neolithic, and that the knoll was held as an outpost by the defenders of the camp.

In the accompanying plan (fig. 7) the neolithic features are shown in red, and the Early Iron Age in black, but the innermost ring must be considered doubtful, the odds being in favour of neolithic. The plan itself is based on Messrs. Crawford and Keiller's air-photograph, together with the writer's own observations on the ground, aided by bosing. But it must be understood that it is not a survey, and that the details of the earthwork on the southern knoll are only sketched in very approximately, as that part was not included in the air-photograph.

OTHER POSSIBLE SITES

There must assuredly be countless other neolithic camps in the country awaiting discovery, now that their surface characteristics are known. A few possible or doubtful sites must be mentioned in passing.

(1) THE BROWN CATERTHUN, Forfarshire.¹⁸—This fort consists of four concentric rings of ramparts, some being accompanied by ditches, several gaps and causeways being visible on the surface. Mr Keiller knows it well and tells me that he is a little doubtful as to its being neolithic.

(2) DINAS in Trefeglwys,¹⁹ near Llanidloes, Montgomeryshire.—

¹⁸ 6 inch O.S. (Forfar), 19 SE. Described by Dr D. Christison in *Early Fortifications in Scotland*, 256-263, with plan.

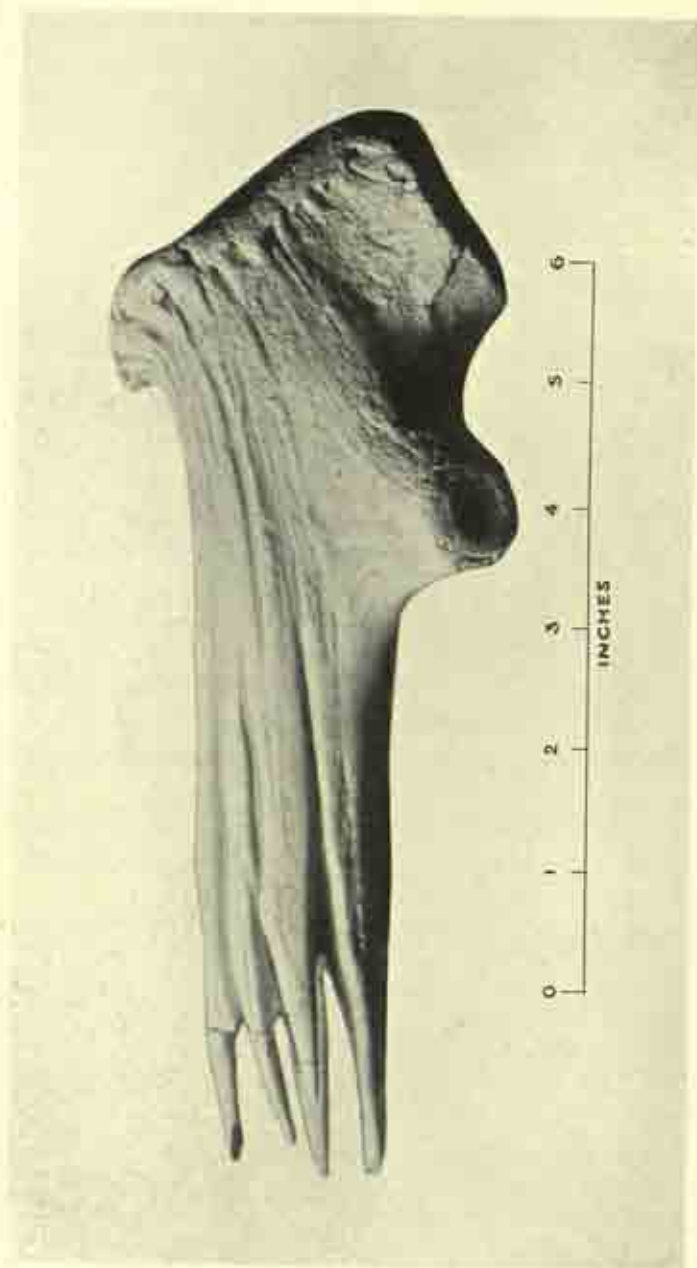
¹⁹ 6 inch O.S. (Montgomery), 41 NW.

PLATE I



WINDMILL HILL, WILTSHIRE: MIDDLE DITCH, SHOWING SMALL CAUSEWAYS
FR. Alex. Reiller

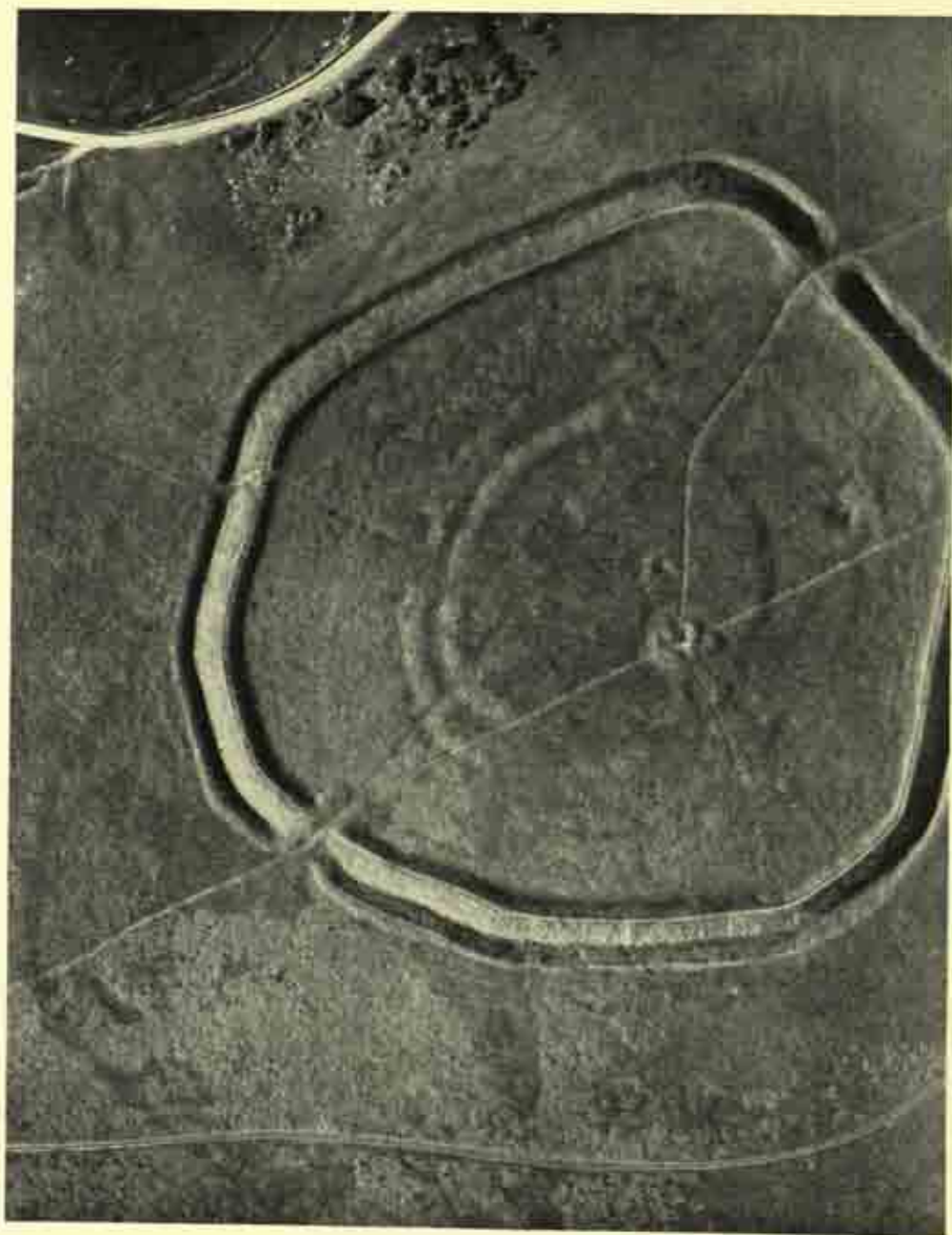
PLATE III



NEOLITHIC ANTLER-COMB FROM WINDMILL HILL.

Ph. Alex. Keiller.

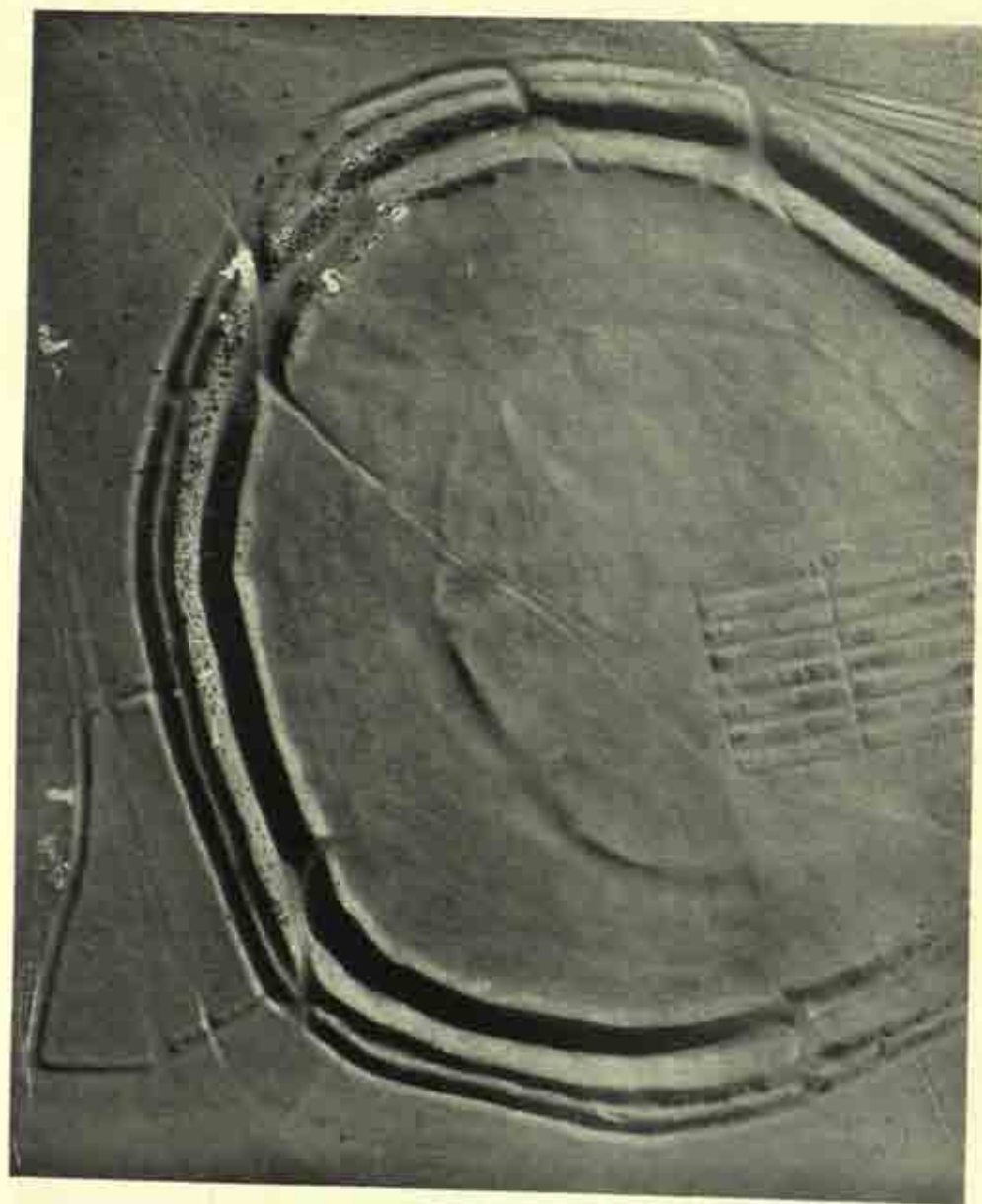
PLATE IV



THE TRUNDLE, SUSSEX

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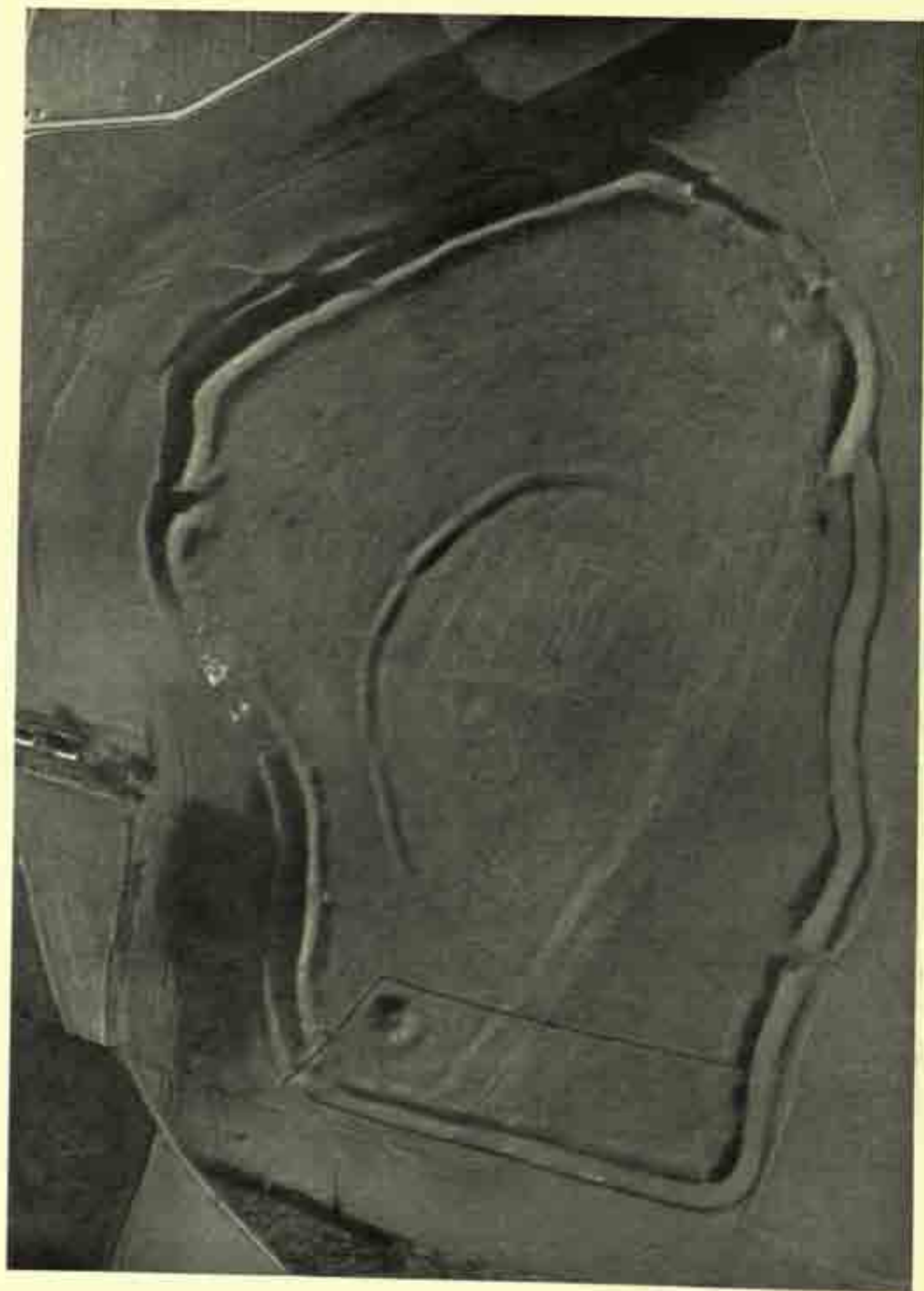
PLATE V



YARNBURY CAMP, WILTSHIRE

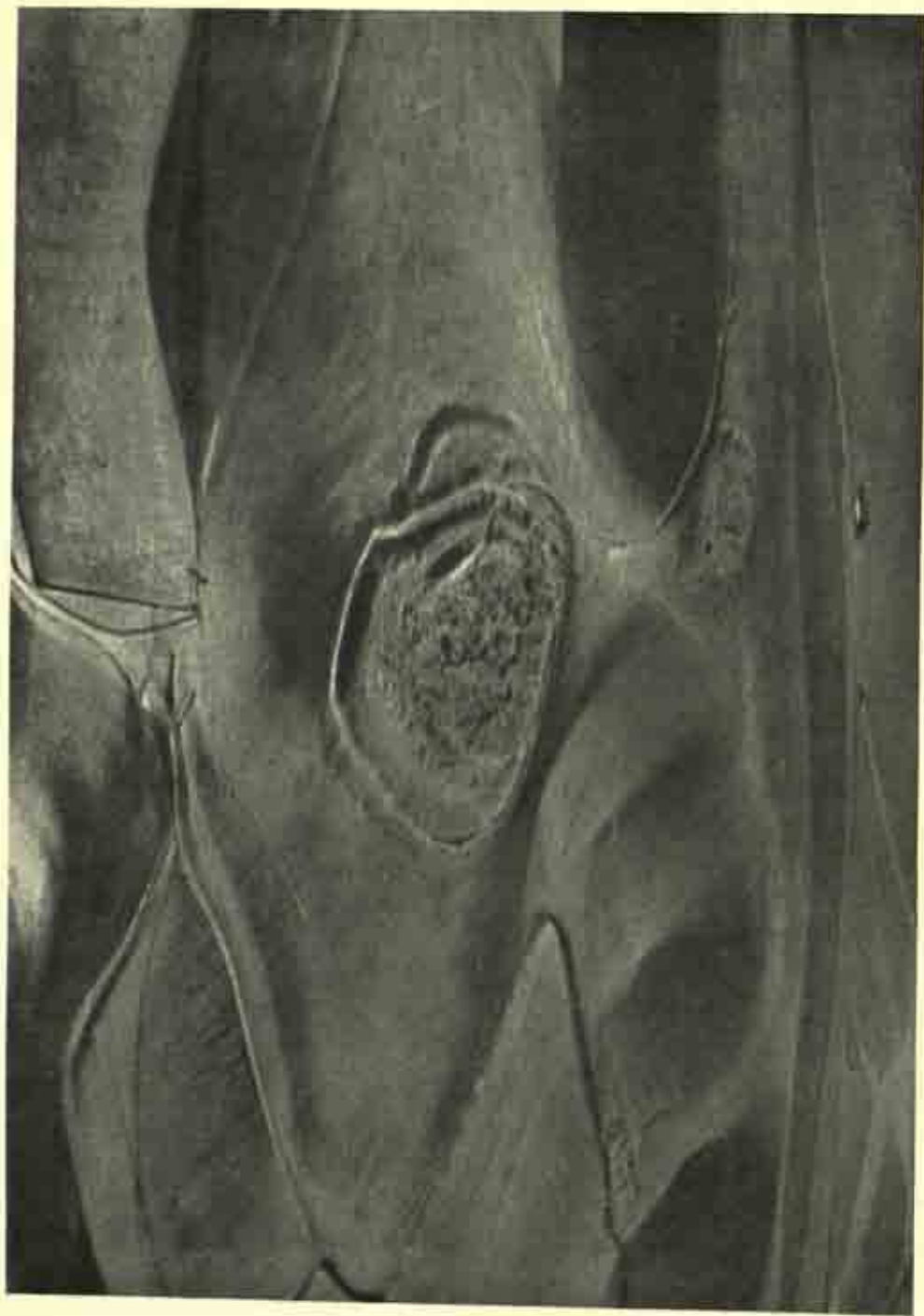
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PLATE VI



SCRATCHBURY CAMP, WILTSHIRE
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PLATE VII



RYBURY CAMP, WILTSHIRE, LOOKING SOUTH
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PLATE VIII



FIG. 1. NEOLITHIC BOWL FROM THE TRUNDLE, SUSSEX

Note the round bottom, plain rim and ledge-handles

Ph. E. Cecil Curwen



FIG. 2. NEOLITHIC BOWL FROM WINDMILL HILL, WITH VERTICALLY PERFORATED SIDES

Ph. Alex. Keiller, by permission

PLATE IX



NEOLITHIC VESSELS FROM ABINGDON. NOTE CARINATION AND LOOP-HANDLES
By permission of E. T. Leeds

NEOLITHIC CAMPS

This fort, to which Mr W. J. Hemp has drawn attention, consists of somewhat scattered and disjointed ramparts defending a narrow and abrupt ridge. There are several apparent gaps in the ramparts.

(3) MAIDEN BOWER, near Dunstable, Bedfordshire.²⁰ A single line of bank and ditch constitutes this fort, but its plan as published in the Victoria County History of Bedfordshire looks suggestive. An antler comb, similar to those from Windmill Hill and Abingdon, was found here,²¹ and the site is a well-known hunting-ground for flint implements. The writer has not had an opportunity of seeing the site, but Mr C. W. Phillips has recently visited this camp and tells me that he can find no superficial evidence of a neolithic date.

(4) BUZBURY, between Blandford and Wimborne, Dorset.²²—The arrangement of concentric rings with gaps is suggestive, together with the fact that Mr Crawford has found in the interior several shards, including perforated lugs.²³

(5) BARKHALE DOWN, Bignor, Sussex.²⁴—This camp, which was recently discovered by Dr J. A. Ryle, consists of a single ring with a short length of a second and parallel line a few yards to the southeast. Bosing seems to indicate the presence of causeways, but the site is so overgrown with heather and bracken and a scrub of thorn and other bushes that this needs confirmation. Dr Ryle hopes to examine it with the spade during the next few months.

(6) Near OVERTON HILL, Avebury,²⁵ an air-photograph has revealed what look like portions of two concentric ditches in a ploughed field, and these ditches appear to have been interrupted by the erection of two round barrows which are believed to be Bronze Age in date. If this is actually so, it is strong presumptive evidence that the ditches belonged to a neolithic camp. The site is just north of the Bath road where it crosses the first ridge to the west of the Ridgeway.

²⁰ 6 inch O.S. (Beds.), 32 NW. Described in *Vict. Co. Hist. Beds.*, 1, 160, 269.

²¹ *Ibid.* 169, fig. 60.

²² 6 inch O.S. (Dorset), 24 NE and SE. Described by Heywood Sumner, *Earthworks of Cranborne Chase*, 25 with plan; and by Crawford and Keiller, *Wessex from the Air*, 64-5 with air-photo.

²³ *Loc. cit.* 64.

²⁴ 6 inch O.S. (Sussex), 49 NE.

²⁵ 6 inch O.S. (Wilts), 28 SW.

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NEOLITHIC CAMPS IN FRANCE

Déchelette says that neolithic camps are numerous in the hilly parts of France, and cites six examples.²⁶ M. Piroutet supplements this with a list of neolithic camps in Franche Comté,²⁷ but as very little description is given of the actual earthworks, and as Déchelette says that most of these sites have been successively occupied in different periods, one cannot be certain that the existing remains date in every case from the neolithic period, even though characteristic neolithic material may have been found there. Cissbury provides a good example of this in our own country, for here a later camp of Early Iron Age type has been superimposed upon neolithic flint-mines, for which reason undiscerning folk still speak of the camp as neolithic. Déchelette says: 'At the present time it would be premature to pretend to determine the distinctive characters of neolithic fortification, or even to seek to compile a list of enclosures constructed in that period'. Neither he, however, nor any other French writer says anything about numerous entrances or causeways. The writer has not yet had an opportunity of examining any of these camps personally, so we must be content with a consideration of the camp (plan, fig. 8) of Peu-Richard, near Thénac in Charente Inférieure, which was excavated by Baron Eschassériaux about 1882.²⁸ This camp consists of a more or less concentric arrangement of ditches, more irregularly disposed than those of the English examples. There is a small inner circle surrounded at a little distance by two, and sometimes three, parallel ditches, 20 to 30 feet apart, each with its accompanying rampart. Apparently there are not more than four entrances, though it is possible that minor causeways, if such existed, may have been overlooked. The whole area of the camp is about 17 acres, thus approximating to that of the outer limits of the camps at Windmill Hill, the Trundle and Whitehawk. The outer ditch is about 20 feet wide and 10 feet deep.

²⁶ Déchelette, *Man. d'Arch.* 1, 368-71, 352-3. Camp de Chassey (Saône-et-Loire and Côte d'Or), Peu-Richard (Charente Inf.), Campigny (Seine Inf.), Catenoy (Oise), Camp-Barbet (Oise), and Mont Vaudois (Haute Saône). In the last-named neolithic burials were found in the rampart (p. 369).

²⁷ *L'Anthropologie* (1903), xiv, 450-2. Grandchamps (Cernans), Cornaboeuf (Cluny), Saint-André, Mont-de-Mesnay, Fort Belin, Château de Poupet, Roche d'Or (Besançon).

²⁸ *Matériaux pour l'Histoire de l'Homme*, 1882, p. 505. For full bibliography see Déchelette, *op. cit.* 653.

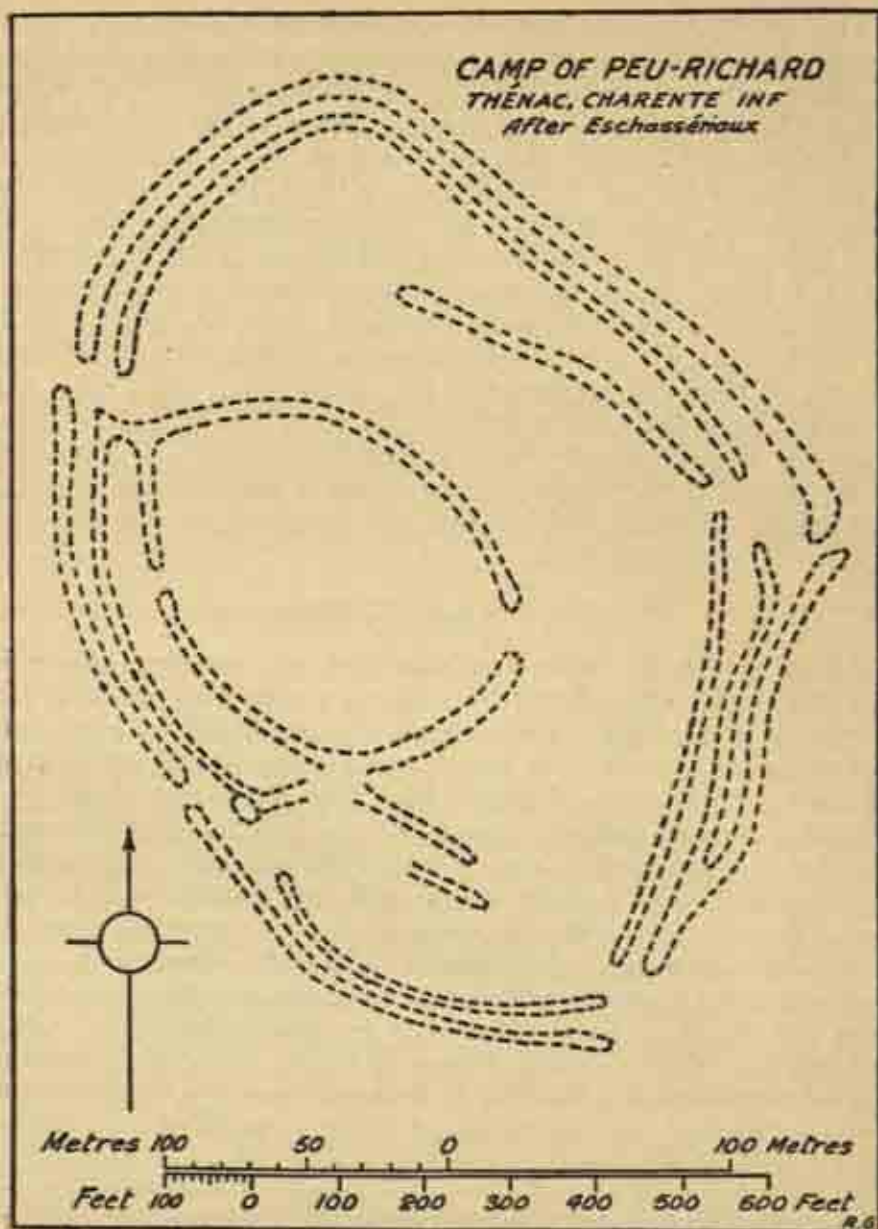


FIG. 8. CAMP OF PEU-RICHARD

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The objects found²⁹ include a considerable quantity of pottery, some of which closely resembles examples from the dolmen of Availles in Brittany, possessing an ornament resembling a pair of spectacles, of which the bridge forms a loop-handle of rather low relief. Other pieces were characterized by lugs, perforated knobs, and thumb-marks. The flint implements include polished axes, a mace, picks, hammer-stones, grattoirs, burins, *petits tranchets*, flint saws, and triangular flint 'points'. These latter may be triangular sickle-teeth, or possibly arrowheads, though it is stated that no arrowheads were found. It may be, however, that only barbed arrowheads were visualized under this term. Of bone implements there were awls and polishers, the latter recalling finds at Avebury. The fauna consisted of ox, sheep, goat, boar, hare, badger and deer. Here again, as in Britain, the complete absence of horse is noteworthy, and is specially remarked by M. Chauvet. All these finds were attributed at the time to the first part of the neolithic period, but unfortunately stratified digging was not practised at the time when Peu-Richard was excavated.

NEOLITHIC CAMPS IN GERMANY

There are two outstanding examples in Germany of neolithic camps with interrupted ditches.³⁰ One is a plateau-camp near Mayen (plan, fig. 9) in the Eifel,³¹ and consists of an oval enclosure surrounded by a single ditch broken by at least eleven entrances, and covering about fifteen acres of ground. Parallel with this ditch and about 80 feet behind it is a small palisade-trench, two to four feet wide, containing post-holes about two feet apart. Three of the entrance-causeways were carefully excavated by Lehner, and in each case evidence was found that they had been fortified with barricades of prone or perpendicular beams, probably forming wooden gate-towers. The finds, which are considered as pointing to the Untergrombach culture of the neolithic period, include various round-bottomed vessels, plain or ornamented with bands of thumb-marks. There is also a type of plain, round-bottomed vessel called a 'tulip-beaker', because it is shaped something like the calyx of a flower. Indeed, but for the round bottom, the shape is so suggestive of the later 'beaker' that it is difficult to resist the view that the latter

²⁹ Chauvet, *Bull. Soc. Arch. Charente*, 1884, p. xxvi. Some of them, including the sherds described and that from Availles, are exhibited in the St. Germain Museum.

³⁰ Hans Lehner, 'Der Festungsbau der jüngeren Steinzeit', *Prähistorische Zeitschrift*, bd. II, heft 1, 1-23.

³¹ *Bonner Jahrbuch*, cxix, 206ff.

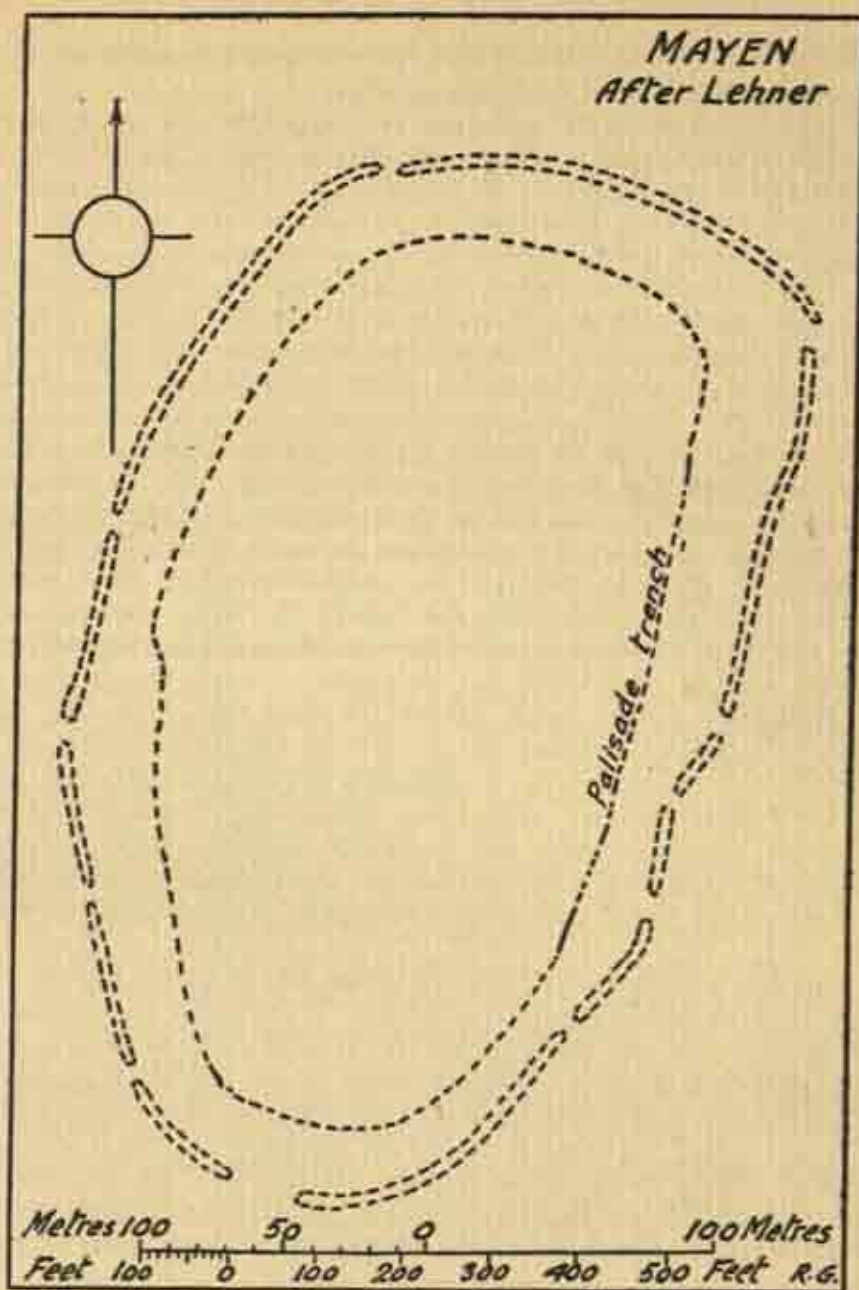


FIG. 9. CAMP NEAR MAYEN

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may have been directly descended from the tulip-beaker, or at least have owed something of its origin thereto.

The second camp of this type is the great fortress at Urmitz²² (plan, fig. 10), situated on a level plain on the bank of the Rhine a short distance north of Coblenz. It consists of two lines of interrupted ditches, 36 feet apart, describing a great semicircle, some 1400 yards across, the Rhine itself defending the remaining side. Behind the inner ditch is a palisade-trench, two feet wide and six feet deep, and this is pierced by regular entrances opposite each of the causeways crossing the *outer* ditch; these are less numerous than those crossing the inner ditch. Lehner thinks the vallum must have stood on the space between the two ditches, and that the supernumerary causeways across the inner ditch served to enable the defenders to man this vallum. He also calculates that there must have been about 22 actual entrances to the fort, viz., one every 100 metres of the circumference, these entrances being marked, not only by causeways across both ditches, but by a corresponding gateway through the palisade-trench. The entrances that have been excavated have also shown the same evidence of the former existence of wooden gate-towers as we have seen at Mayen.

The objects discovered on excavation here indicate the same Untergrombach culture as at Mayen, but extending into the beaker period, viz., round-bottomed vessels with or without rows of finger-tip impressions on raised bands, horizontally perforated lugs, and round-bottomed 'tulip-beakers' even more beaker-like in shape than those at Mayen. Actual beakers also occurred, together with an archer's wrist-guard. Polished axes, perforated axe-hammers, finely worked flint saws and a small whetstone are among the principal objects of stone.

Two other German neolithic forts are described by Lehner,²³ but neither of these has interrupted ditches. This fact is instructive for it warns us to be on the look-out for the possibility of finding a similar type in our own country. One of these is on the Michelsberg near Untergrombach—a site which has given its name to the culture of Mayen and Urmitz—and the other is on the Hezzenberg near Heilbronn, and appears to belong to the same period. At this last site the dwellings proved to be outside the ramparts, and this recalls the case of the undated camp on White Tor near Petertavy, Dartmoor—a double ring of ruined

²² *Ibid.* cv, 164-72; cx, 122ff.

²³ Lehner, *Präh. Zeitschrift*, loc. cit.

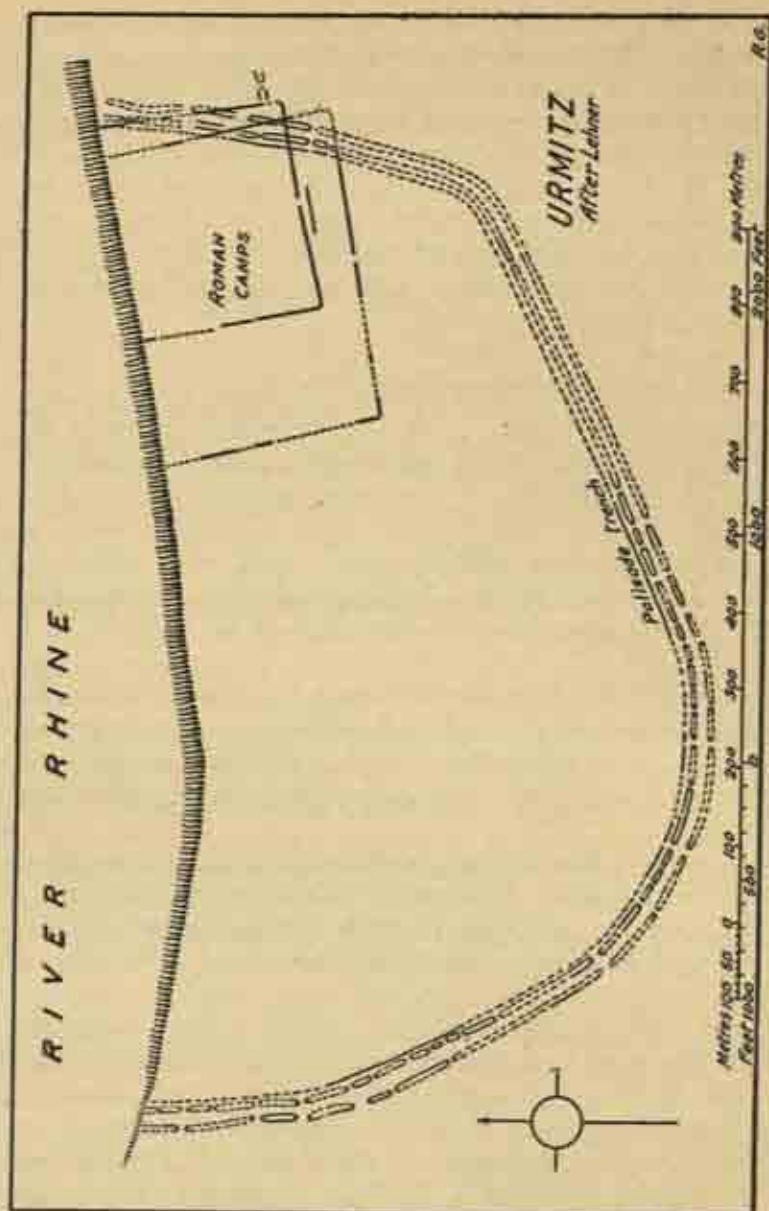


FIG. 10. CAMP AT URMITZ

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walls with a group of hut-circles outside. As most of the remains on Dartmoor appear to be either neolithic or Early Bronze Age in culture, and as hill-forts, so far as we know, were only erected in the neolithic period and Early Iron Age, one should be prepared to include White Tor among the British neolithic forts. If this is so, the extramural settlements at Hezzenberg and White Tor may explain why traces of settlement are so rarely found in the *interior* of neolithic camps.

Lehner also describes another neolithic fort at Lengyel in Hungary, having a single line of defence, not interrupted, but deficient on the steepest part of the hill.

CHARACTERISTICS OF NEOLITHIC CAMPS

From the descriptions given above it will be seen that British neolithic camps possess certain very definite and recognizable characteristics, not all of which are, however, exclusive to that period of construction.

The most obvious characteristic, and the most difficult to understand, is the tendency for the ditches to be interrupted by frequent causeways at short intervals. Possible reasons for this will be considered below.

Then there is the tendency to concentric lines of defence, separated by spaces of the natural ground level. This is not exclusively a neolithic feature, but it is very suggestive, and if in addition one of the outer rings is fragmentary in character, a presumption in favour of a neolithic date is strengthened.

In some cases the defences are deficient altogether where the hill falls away very steeply. It remains to be seen whether this will prove to be exclusively a neolithic feature, but as things are it is highly suggestive, especially when taken in conjunction with other characteristics.

The ground-plans of neolithic camps vary considerably, but if one is more common than another, it is the oval, more or less unrelated to the contour of the ground. Other varieties include a simple promontory (Abingdon), a semicircle (Scratchbury and Urmitz), and various outlying earthworks (Rybury) or radial ditches (Whitehawk). The number of parallel defences varies, too, from one (Knap Hill) to four (Whitehawk), and this seems to bear a general relation to the steepness of the hill, though not constantly so.

The situations of these camps are also varied; the majority are on hills, but low-lying sites occur, as at Abingdon and Urmitz. Of the

NEOLITHIC CAMPS

hill-forts some may be situated on abrupt and prominent hills (Knap Hill and Rybury), and others on gentler eminences (Windmill Hill) or plateaux (Yarnbury). One very curious feature is that in some cases the builders seem to have chosen a saddle between two slight eminences (Whitehawk and Combe Hill)—a situation which to modern ideas would seem scarcely the best for defence.

THE PURPOSE OF THE CAUSEWAYS

The causeways across the ditches may be divided into two classes : (a) those which have no corresponding gaps in the accompanying ramparts ; and (b) those which do correspond with such gaps.

The former class obviously cannot have been gateways, and one can only suppose that the ditches were considered as quarries for material with which to build the ramparts, and that the various work-parties dug their own pits and were not particular as to whether they established communication with their neighbours in adjacent pits. Something of the same sort is seen in the case of the ditch round Stonehenge, the plan given in *ANTIQUITY* (1929), III, 80-1 making this very clear. That this habit of discontinuous digging persisted into the Bronze Age is evidenced by a round barrow of the Early Bronze Age in Cranborne Chase, possessing a ditch with the same features.³⁴ If this theory is correct, it may possibly point to the builders being more familiar with stone walls than with earthen ramparts, for stone-wall forts do not always have ditches, e.g., the neolithic fort at Dimini in Thessaly.

On the other hand those causeways which lie opposite gaps in the accompanying rampart may well have been gateways. Lehner, who found evidence of actual gate-towers at Mayen and Urmitz, calculates that the former fort must have had about seventeen such gates, and the latter twenty-two. None of our British examples has yet yielded evidence of such gate-towers, but if numerous entrances were the vogue in Germany they may well have been so here also. Lehner³⁵ attempts to trace this type of fortification to the Aegean coasts, where he compares with it the neolithic stone forts of Dimini and Sesklo in Thessaly.³⁶ Dimini, the better preserved example, consists of roughly concentric

³⁴ Crawford and Keiller, *Wessex from the Air*, 12. cf. *ANTIQUITY*, 1927, 1, plate opp. p. 426.

³⁵ *Präh. Zeitschrift*, loc. cit.

³⁶ Ch. Tsountas, *Αἱ προϊστορικαὶ Ἀκροπόλεις Διμηνίου καὶ Σέσκλου* (Athens Arch. Soc., 1908).

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rings of stone walls pierced by several radial alleys which he considers to be analogous to the causeways of the earthen forts.

If, then, we admit the fact of numerous entrances in this type of camp, the question naturally arises as to why so many should be needed. In this connexion Lehner draws a very striking comparison between the fortress at Urmitz beside the Rhine, and the ramparts described by Homer as having been drawn by the Achaeans round their ships on the sea-shore. These latter are incidentally described in many passages in the seventh and twelfth books of the *Iliad*, from which we learn that the defences consisted of a rampart with external ditch and palisades, broken at intervals by several gateways which opened through timber towers. This might well be a description of the camp at Urmitz as reconstructed from archaeological evidence, in spite of the fact that the period usually assigned to the Trojan war is the beginning of the Iron Age in the Aegean. Yet surely such an exact description of a neolithic camp must have been an example of 'folk-memory'. From the description of the Trojan attack on this rampart one infers that the reason for so many gates was to enable the defenders to make sallies at any point on the line, and this view is confirmed by the remarkable description of Egyptian Thebes as having 'a hundred gates from each of which rush out two hundred men with horses and chariots'.³⁷ This may be taken as the poet's exaggerated conception of what constituted a strong city in prehistoric Europe, rather than as an actual description of Thebes, but it seems to betray the idea that may have been in the mind of the builders of our British neolithic camps, when, as at the Trundle and Combe Hill, they left so many entrances through the ramparts.

The problem, however, is not quite a simple one, and cannot be said to be finally settled.

NEOLITHIC POTTERY

A study of the various types of neolithic pottery that have been found in Europe and the Mediterranean region would be far too large a subject to be included in this paper, nor would the writer be competent for such a task. Such a study would, however, be necessary for the proper understanding of the different types of pottery which have been found in British neolithic camps. Nevertheless a few tentative remarks may not be out of place.

³⁷ *Iliad*, ix, 381-4.

NEOLITHIC CAMPS

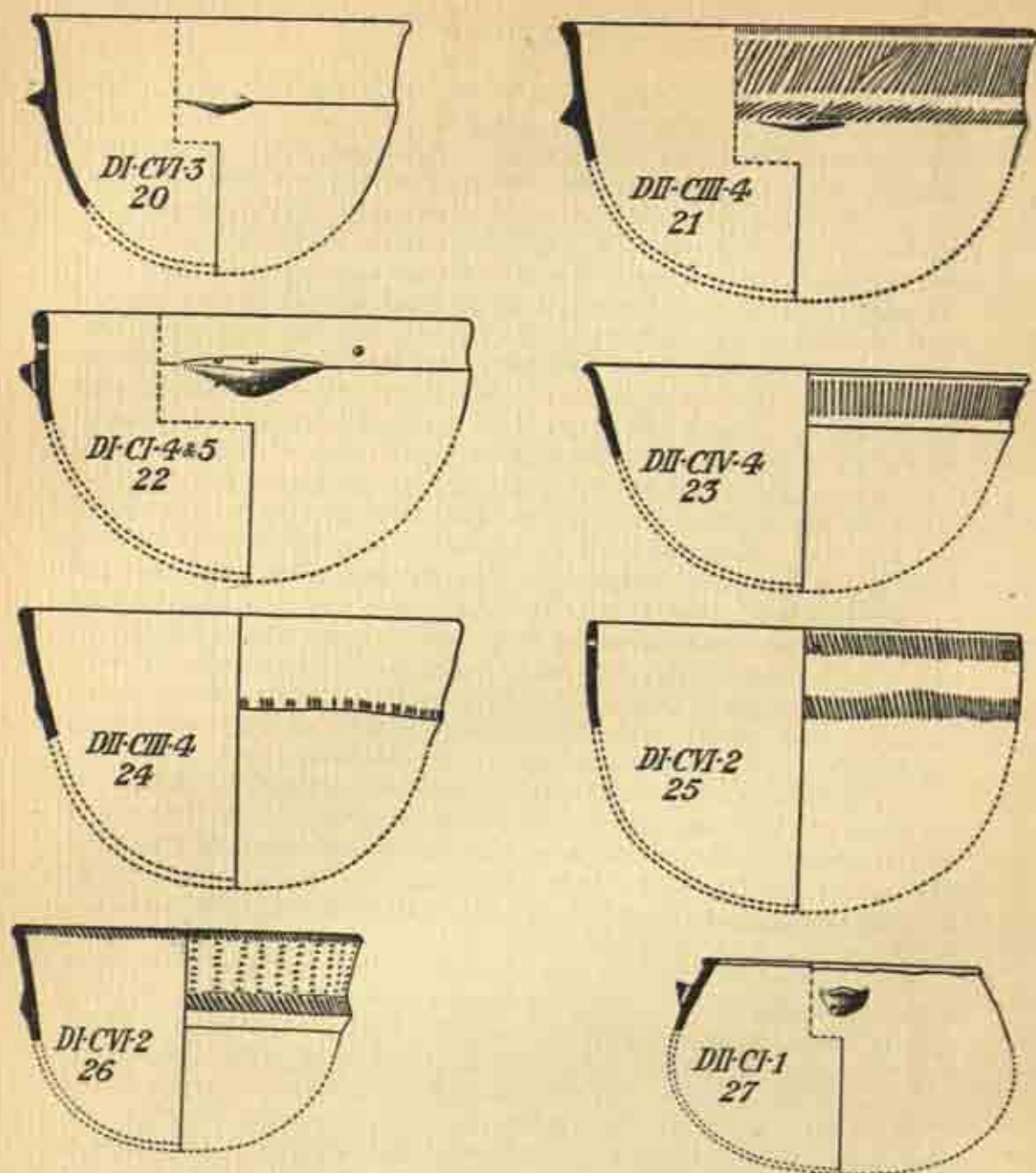
While throughout Europe and the Mediterranean region every district seems to have its own peculiarities in regard to neolithic wares, it is a very striking thing that there are two features which are almost, if not quite, universal, viz., the round bottom and the vertically perforated lug. The former is found in the Badarian pottery of Egypt and is by far the commonest form in all neolithic pottery. Flat bottoms do occur even in the Badarian vessels, but they are always in the minority, and this seems strange, seeing that it must be much more difficult to make a round-bottomed pot, as a lump of clay naturally acquires a flat base when being moulded on a flat surface. Besides this, the round bottom seems to our way of thinking to be the more awkward shape, so that there must have been some very good reason for its general adoption among the peoples of neolithic culture.

The vertically perforated lug was not by any means the only type of handle known to neolithic pottery, but it is peculiar to that period and has been found widely distributed from the earliest cities at Troy right across Europe to Britain. In some favoured sites, as at Troy and in the Swiss lakes, fragments of cord have been found inserted through the perforations, thus revealing that their purpose was to enable the vessel to be suspended. This, together with the fact that horizontally perforated lugs are frequently found, suggests the most probable reason for the round bottoms, viz., that it was the common habit to suspend the vessels instead of standing them on the ground.

It is obvious that, while there is a general resemblance between the neolithic vessels from various sites in Britain, there are also differences, as, for instance, the prevalence of carinations in one site and their absence in another. Are these differences due to local fashions, or do they represent different foreign influences, or are they an index of a sequence of chronological development?

Mr Thurlow Leeds³⁸ has discussed the primary distinction between the highly decorated Peterborough (Mortlake or West Kennet) type of bowl on the one hand, and the Windmill Hill (plate VIII, fig. 2) and Abingdon (plate IX) types on the other hand, and has pointed out reasons for believing that the latter had cultural connexions with the Atlantic seaboard from Portugal to Scotland, while the Peterborough class seems to be related to Baltic types. Mr Keiller's stratification at Windmill Hill further shows that the Atlantic variety is earlier than the Baltic, and that the two kinds are separated by a sterile layer of soil in his sections.

³⁸ *Antiq. Journ.* VII, 456-62.



1" 0 5" 10" 15" 20"
R G 1929
FIG. 11. NEOLITHIC POTTERY FROM WHITEHAWK CAMP. (Conjectural restorations)

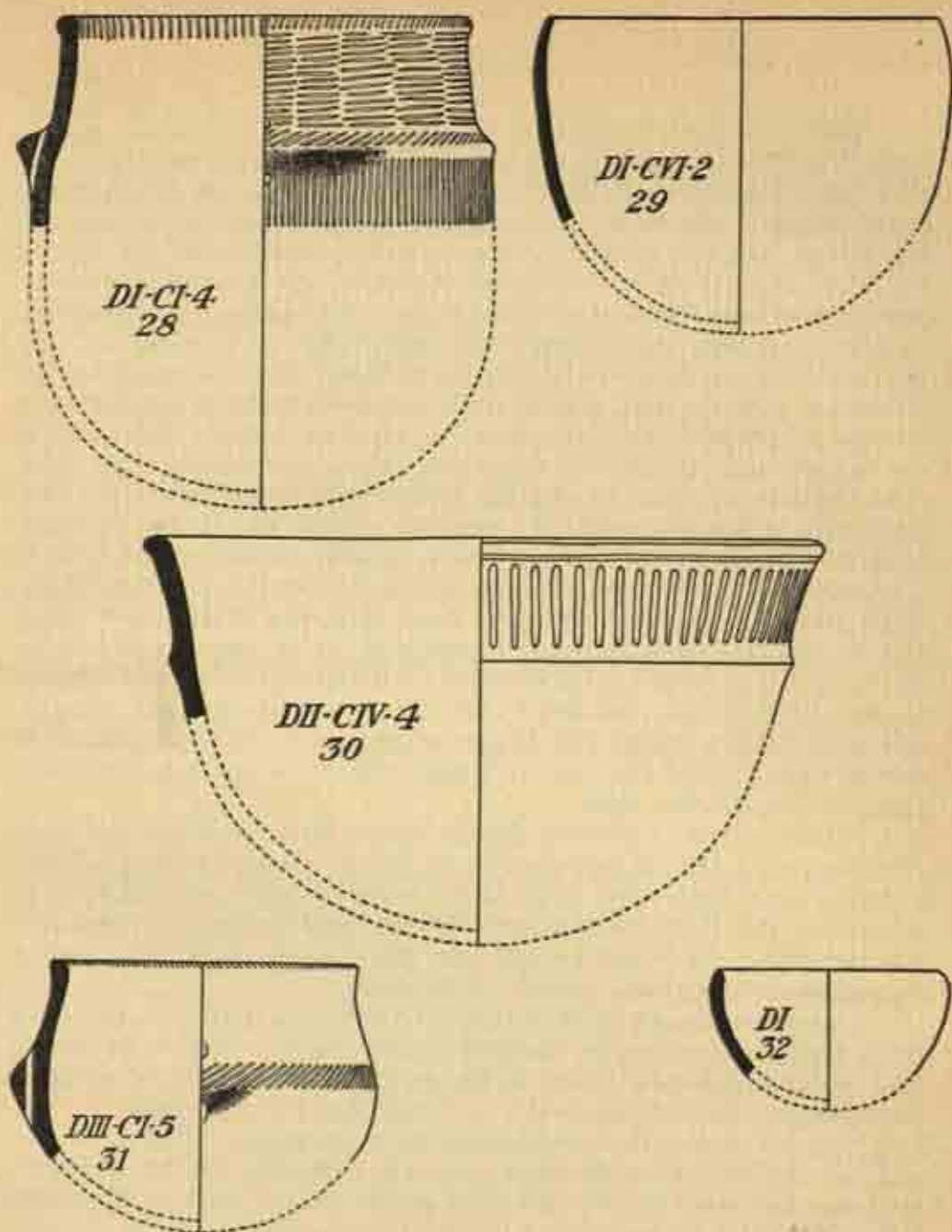


FIG. 12. NEOLITHIC POTTERY FROM WHITEHAWK CAMP. (Conjectured restorations)

Going still further, one may say that a study of the pottery vessels from Windmill Hill, Abingdon and Whitehawk (fig. 11) impresses one with the feeling that with their makers the ceramic art was by no means in its infancy. Sometimes the technique is equivalent to the best the Early Iron Age has produced, but, though in many cases the vessels are crude and primitive, the variety of shapes and styles of decoration presupposes a considerable previous history, and one has the impression that one is dealing with a degenerate rather than an evolving art, and with products resulting from the fusion in Britain of a number of foreign influences. As has been hinted above, Mr Leeds believes that the main connexions are with the dolmens of Portugal and Brittany, but this will not explain why, in spite of many similarities, the vessels from these three British sites (not to mention other minor finds) have their own distinctive characters, while the Scottish pottery also differs in detail from the English, while preserving a general family resemblance.³⁹ The similarity is, perhaps, closest between the Scottish and the Whitehawk pottery, a fragmentary vessel from Easterton of Roseisle⁴⁰ being almost identical with another represented by a single shard from Whitehawk (fig. 11, no. 30), and both seem to have their closest analogues in the pottery of the 'habitation-site culture' of Sweden and Norway, in regard both to shape and to ornamentation.⁴¹ The comparison is corroborated by the discovery at Whitehawk of a rough crescentic flint knife of Scandinavian type.

It seems likely, therefore, that in the so-called Windmill Hill class of pottery—the term is here used in Mr Leeds' sense, including all pre-Peterborough types—we must distinguish at least two sources of influence: one from Portugal and Brittany, and one from Sweden and Norway, while the Peterborough class itself seems to be most closely related to the megalithic pottery of Denmark.

These conclusions must be only tentative, and must be tested by a great deal more excavation as opportunity arises. It is to be hoped that by drawing attention here to the surface characteristics of neolithic camps many more examples will be recognized and recorded.

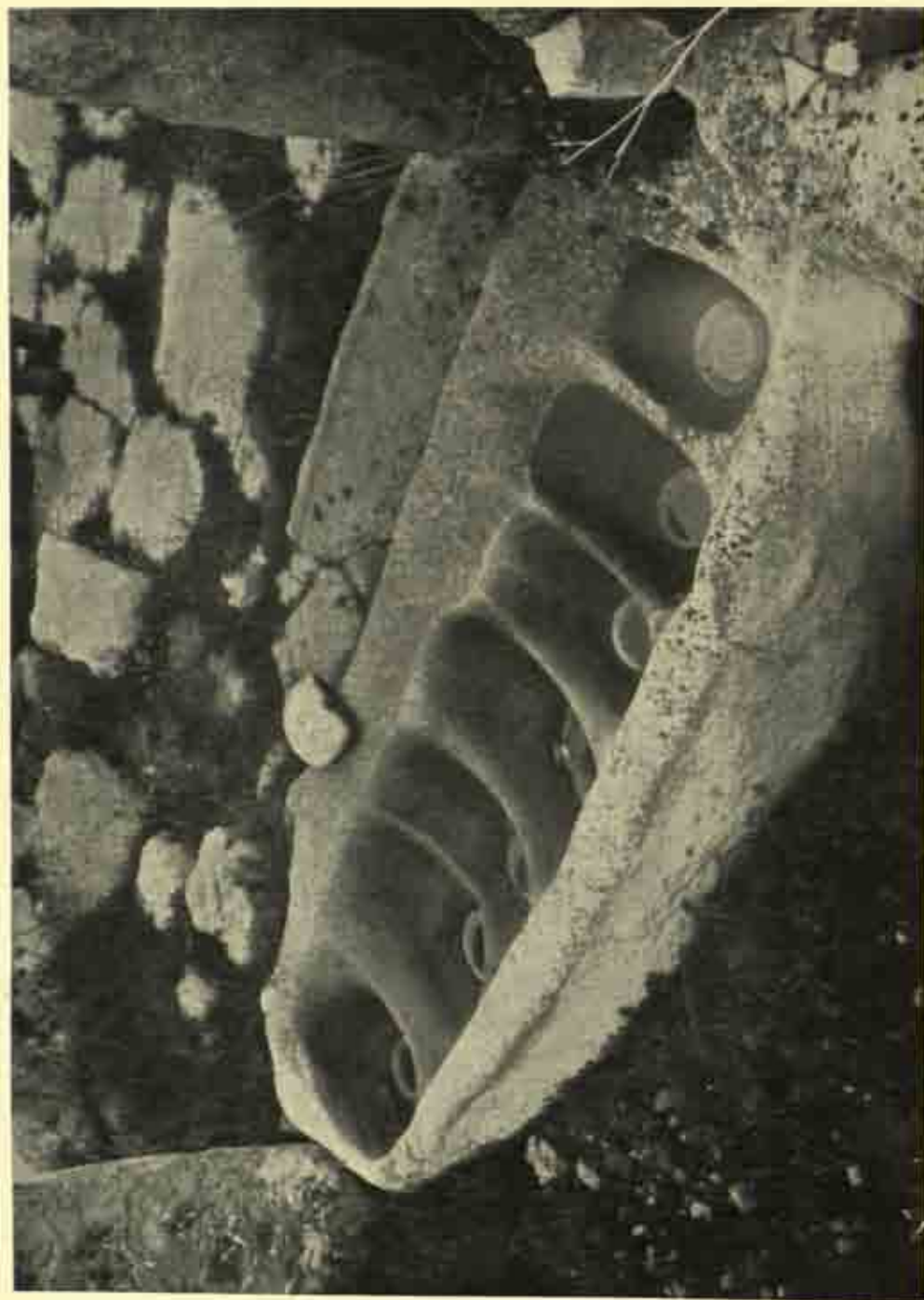
I cannot close without expressing my indebtedness to Mr Crawford and Mr Keiller for much assistance, and especially for Mr Keiller's generous insistence on my including details of his work at Windmill Hill even though his own report has not yet appeared in print.

³⁹ J. Graham Callander, 'Scottish Neolithic Pottery', *Proc. Soc. Antiq. Scotland*, LXIII, 29-98.

⁴⁰ *Ibid.* fig. 37 (p. 56).

⁴¹ See Ebert's *Reallexikon der Vorgeschichte*, IX, plates 18-22, 27, 28, 40-1, 52.

PLATE I



HARD STONE USED AS A GRINDER IN THE CORDON RUINS
Pg. No. 18, Chiquitana

The Prehistoric Remains of the Maltese Islands

by Sir T. ZAMMIT

SO little has been published about the prehistoric remains of Malta and Gozo that archaeologically the islands are hardly known. Visitors are numerous, but attention is usually concentrated upon Hajar Kim or some other megalithic building to the exclusion of other interesting remains. Thus a meagre impression is usually obtained of the profusion of neolithic relics which still exist. Even standard works on archaeology, treating of the early periods of the Mediterranean civilization, give only a small space, if any, to Maltese monuments.

As late as the year 1925 a leading authority¹ on early European culture thus referred to Malta. 'It would take a whole book to give even the most cursory summary of the Maltese material. And then no progress would have been made. No significant parallels are at present known to the temples, the carving, the statuettes, or the pottery . . . It is still quite impossible to say whether Malta played the rôle of master or disciple among her neighbours and fruitless speculations on this topic had best be omitted'.

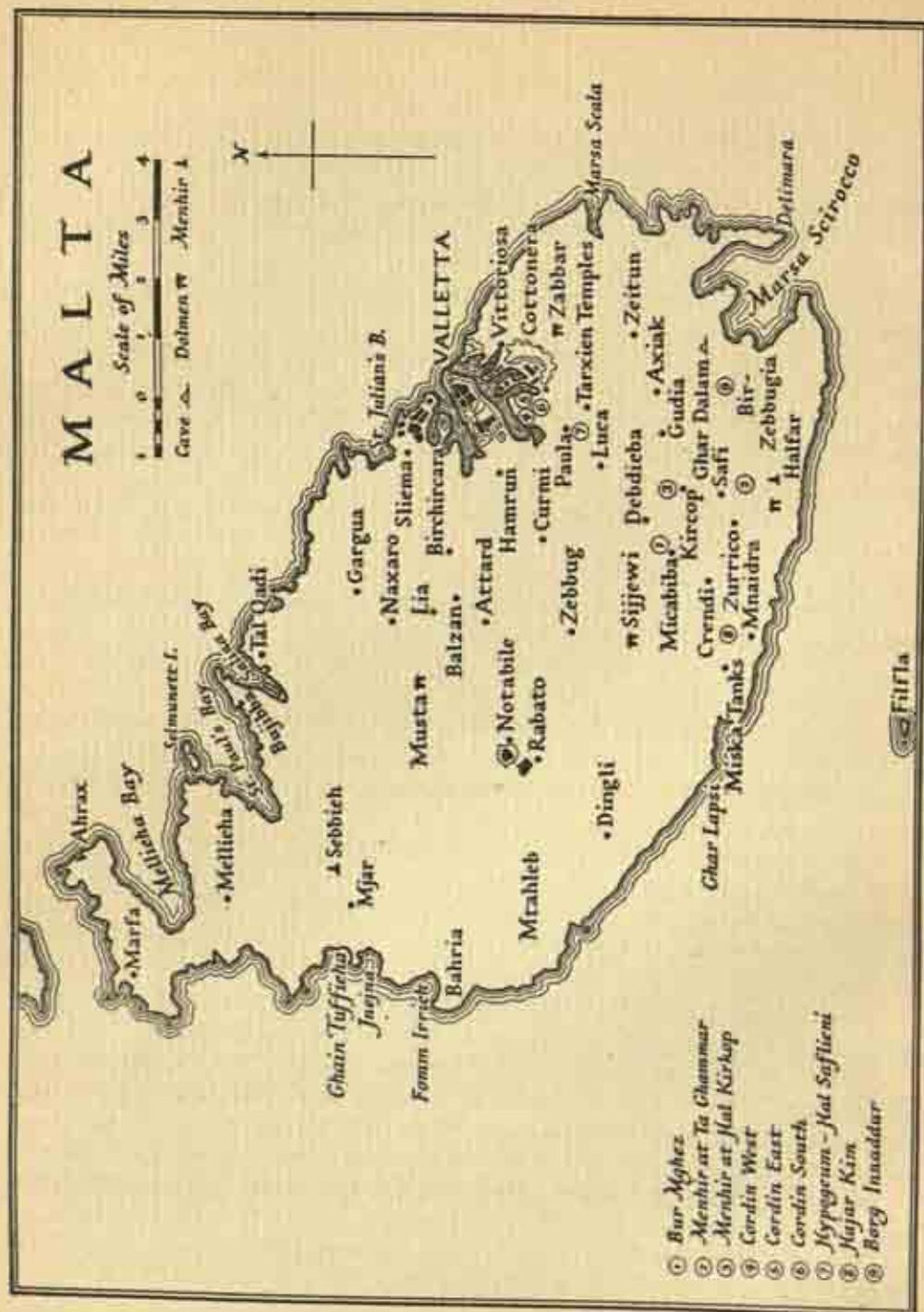
As a matter of fact neolithic monuments are very numerous, and it is regrettable that no comprehensive description of the Maltese antiquities has been compiled to help students to form a correct view of their importance in the development of an early culture at the dawn of Mediterranean civilization.

Failing such a book, I hope that an informal list of the megalithic remains in these islands will prove of interest to students.

Malta is the largest island of a group in the Mediterranean sea, the others being Gozo, Comino, Cominotto and Filfolà. The group lies about 60 miles to the south of Sicily and 180 miles to the north of Africa.

Malta is about 17 miles along and 9 miles broad, with its long axis running southeast and northwest. Gozo, to the northwest of Malta, is

¹ V. Gordon Childe, *The dawn of European civilization*, p. 101.



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about 9 miles long and $4\frac{1}{2}$ miles broad, with an area of about 26 square miles.

The highest hill in Malta is only 826 ft. above sea level. Both islands end, at their southwestern coasts, in abrupt cliffs which at some points rise sheer from the sea to a height of about 400 ft. The high table-land slopes gently to the northeast, where the coast is low and indented with bays, creeks and harbours. The action of rain water has denuded most of the upper strata, forming valleys, ravines, basins and caves.

Geologically, the rocks are sedimentary without any sign of volcanic material. They belong to the Tertiary epoch. It has been suggested that there was an Eurafrian land-bridge between Sicily and Africa of which the Maltese islands is all that remains. Then the surface of the islands must have been about 4,300 ft. above sea level.²

The large land-locked harbour of Marsa Scirocco, to the south of Malta, represents, in all probability, what was once a fresh water lake. This would explain the presence in this island of elephants and hippopotami requiring for their existence an expanse of fresh water and an abundant vegetation.

Mr Sinclair considers that the land-bridge was not destroyed by a cataclysm, but by a slow subsidence at the rate of about 1 foot in a 100 years, a rate rendered probable by the depth of the sea around Malta and the time that separated our era from the last ice-age.

The pleistocene mammalia that roved over the bridge following the vagaries of the ice barrier, had a short life when the bridge disappeared, and their bones found their way into caves and fissures where they appear now as masses of fossil deposits. M. Vaufreys³ denies the Eurafrian bridge, but believes in an extension of the Sicilian land across the Maltese channel. Caves and deposits are numerous in the Maltese islands and the result of excavations, conducted at different times, are now exhibited in the Valletta museum.

CAVES

GHAR DALAM. The most important cave that appears to link these islands with the ice-age of southern Europe is known as Ghar

² G. G. Sinclair, 'Ghar Dalam and the Eurafrian bridge'. *Jour. R. Anthropol. Inst.* 1924, p. 261.

³ Ramon Vaufreys, 'Les éléphants nains des îles Méditerranéennes et la question des isthmes pléistocènes'. *Archives de l'Institut de Paléontologie humaine*, mémoire 6.

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Dalam (the cave of darkness). It is undoubtedly a relic of the bygone ages, containing the fossilized remains of numerous extinct animals, and it has served as the dwelling place of human families from palaeolithic to late Punic days.

The cave opens in a ravine close to the shore of St. George's bay at Birzebbugia to the south of the island, about 6 miles from Valletta. The entrance is halfway from the bottom of the ravine and is protected by an iron gate in charge of a caretaker. The cave is wide and high, huge stalactites hang from the ceiling, and broken stalagmites cover most of the floor. For a length of over 300 ft. a marly deposit, over 23 ft. deep, contains fossil animal bones, pebbles, and boulders of various sizes.

For about 3 ft. above the rock-bottom a layer of plastic clay free from animal remains is found; then follows a layer of bone breccia about 3 ft. thick, containing fossil animal bones in utter disorder. Most of the remains are of elephants and hippopotami rolled up by water into pebble form. Over the breccia, rounded pebbles and small boulders, worn smooth, extend for a depth of about 1 ft. Some 7 ft. of red earth containing animal bones cover the boulder layer, and on the top of this earth and stones are deposited until the cave-floor is reached. Here we find traces of human activity, the cave having been inhabited in the Neolithic and Bronze Ages, and even in quite recent times.

A startling discovery was reported in 1917 by Mr Gius. Despott, M.B.E., now curator of the natural history section of the Valletta museum. Whilst excavating in the cave he came across eight human teeth, of which two were declared by Sir Arthur Keith to be characteristic of Neanderthal man.⁴ No traces of palaeolithic implements were found in the cave. The flint objects found might be assigned as reasonably to the Neolithic period as to the culture of the late cave period. This discovery renders the cave doubly important, for it brings the presence of palaeolithic man in Malta within the range of probability.

BUR MEGHEZ. Another cave with features quite different from that of Ghar Dalam was discovered in 1911 by the late Prof. N. Tagliaferro in a quarry known as Tan-Naxxari, close to the village of Mkabba, to the northeast of which a narrow lane (on the right of the road leading to the Hal-Farrug road) leads to the quarry, on the left being the cave.

⁴ 'Neanderthal man in Malta'. *Jour. R. Anthropol. Inst.* (1924) LIV.

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Originally, this was a fissure in the globigerina limestone, 62 ft. long, with an average width of 6 ft., with a direction east by north.

Beyond the wide artificial mouth, the light filters into the cave through natural narrow vertical shafts obviously enlarged by human tools. When cleared of the dark red earth that filled it, the cave was found to contain the remains of at least 39 human bodies lying about the walls, and surrounded and in part covered with stones arranged at the time of burial for their protection.

Close to the human bones, crushed and partly disintegrated by the damp earth, potsherds of the early neolithic type were found, together with small polished stone axes or celts, shell beads, and double-holed buttons of various sizes. Bones of domestic animals were also met with, and in the red soil, both within and outside the cave, bones of deer or antelope were obtained in abundance. This would explain the name of *Bur Meghez* given to the site; *Bur* meaning an open space, and *meghez* meaning goats, or really ruminants.

The few remains from this cave are exhibited in the Valletta museum. The cave is Government property and may be visited by applying to the owner of the quarry.

MENHIRS AND DOLMENS

That the early inhabitants of these islands passed through all the stages of Stone Age culture can be gathered from the numerous free megaliths still to be seen, singly or in groups, as menhirs, dolmens and other simple structures. The temples and the other complicated buildings are surely the result of a refinement of primitive culture developed after centuries of trial and adaptation.

What remains of our megalithic monuments must be only a fraction of what once stood in Malta and in Gozo, for on our rocky lands the farmers, in their need of arable soil, are great enemies of stones, which they regard merely as obstacles to the plough.

Several of the megalithic structures mentioned in local literature have now completely disappeared; and everywhere one may meet farmers who openly boast of having helped their father or their friends to clear a bit of ground from enormous blocks of stones that encumbered their property.

The best examples of MENHIRS left standing are the following :

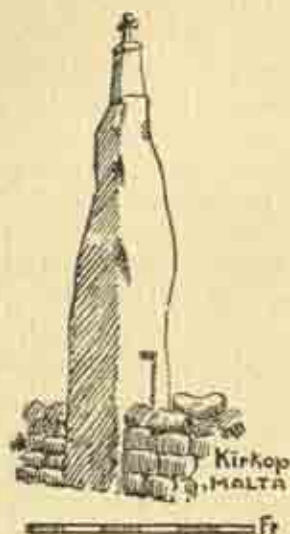
HAL FAR.⁵ In Malta, to the southeast of the Hal Far aerodrome

⁵ See Annual Report of the Curator of the Valletta museum, 1914.

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at the back of the chapel known as Sant Anglu, a slab of hard coralline limestone with untrimmed surfaces stands in a shallow field. It is $5\frac{1}{2}$ ft. wide at the base, and has an average thickness of 2 ft. ; its height is $9\frac{1}{2}$ ft. above the surface of the soil, which is about 2 ft. deep at this point. The stone tapers slightly towards the top, on which in later days a cross has been fixed.

TA GHAMMÀR. To the north of the Hal Far menhir, at a distance of a few hundred yards, another standing slab is to be seen forming part of a rubble wall between two fields. It is close to the new R.A.F. quarters at Hal Far and is a prominent object on the low hill known as Ta Ghammàr. It is a roughly hewn slab 4 ft. 4 in. wide, about $1\frac{1}{2}$ ft. thick, and 7 ft. high above the surface of the soil.



HAL KIRKOP. A more interesting menhir stands prominently on the left of the road, at the entrance of Kirkop village from the Valletta side. It is a roughly squared block of globigerina limestone forming part of the retaining wall of a field. Originally it was shaped as a parallelepiped 3 ft. wide, $1\frac{1}{2}$ ft. thick, and $10\frac{1}{2}$ ft. high ; but in comparatively recent times its top was chipped to fix a stone cross.

SEBBIEH. In the Sebbieh district, on the way to Ghain Tuffieha, in a field called Li-Skorba, a roughly conical stone about 12 ft. above the surface of the field shows over a mound of debris spread on the remains of a megalithic building. The stone is about $4\frac{1}{2}$ ft. wide, and

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2 ft. 4 in. thick. Excavation may prove that this is not a free stone but part of a building of which only a few stones appear above the ground. The abundance of Stone Age potsherds in the vicinity makes it probable that the latter suggestion is more probable.

QALA-GOZO. Only one menhir is left standing at Gozo. It is a fine stone of a hard coralline rock called *Hajra il wieqfa* (the standing stone), pyramidal in shape, with rough surfaces, 10 ft. 9 in. high, 7 ft. wide at the base, and of a thickness throughout varying from 2½ ft. to 3 ft. 3 in. This menhir is easily reached from Mjar, the main landing place at Gozo, before the village of Qala is approached.

DOLMENS

No pottery, implements or similar objects have ever been found near the menhirs or the dolmens in these islands. Being usually raised on the bare rock everything around them must have been cleared away centuries ago.

MUSTA. At least three complete dolmens stood once in a rocky space known as *Ixxaghra ta fuq Wied Filep*, to the northeast of Musta, adjoining the public road leading towards the *Naxxar* gap to the south of Musta fort. One of these dolmens is still standing; it is a fine structure of hard coralline limestone, quarried probably on the spot. The horizontal slab measures 12 ft. in length, 5 ft. in breadth, and 2 ft. in thickness, and is supported by an upright slab at each end about 5 ft. from the ground.

SIJJEWI. To the southwest of Sijjewi on the main road leading to Krendi, one can see in a field on the right side of the road the remains of a fine dolmen, now tampered with in the sense that the supporting uprights were lined with smaller stones and thickly plastered in order to make a shelter for field labourers. The coping-stone has not been moved. It is a slab of globigerina limestone 13 ft. long, 11 ft. wide, and about 2½ ft. thick, supported laterally 4 ft. above the ground. A small cabin with rubble walls has now been built upon it from which the farmer may watch his crops. The dolmen, known as *il-hajra msaqqfa* (the roofed stone), is in a field called *Ta misrah siniura*.

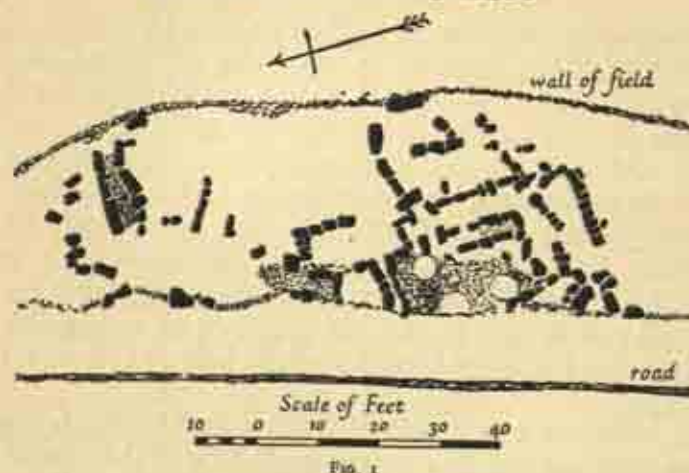
HAL FAR. In the Hal Far district, to the south of the menhir close to Wied Znuber ravine, there is a low dolmen in a good state of preservation practically lost among stones and wild plants. The table-slab, of a roughly hewn limestone, is 12 ft. long, 6 ft. wide, and about 2 ft. thick. The free surface is weather worn, but grooves, cup-like pits

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and a shallow quadrangular depression are clearly to be discerned upon it. The two supporting slabs are small so that the horizontal slab is not more than $2\frac{1}{2}$ ft. above the ground. It appears that the slab was quarried in place and then simply raised and supported at each end.

BIDNI-ZABBAR DISTRICT. A well constructed dolmen is still to be seen in the lands called Tal Bidni, to the southeast of Zabbar village, in a wild rocky space known as Ix-xaghra. The top slab is of globigerina limestone, 9 ft. long, 6 ft. wide, with an average thickness of 9 in. It is about 3 ft. off the ground. The coping-stone is pierced in the centre by a round hole 3 in. in diameter. This hole has weakened the stone,

RUINS AT DEBDIEBA.



which gave way along the middle line so that the two fragments are raised at the outer edges and depressed towards the centre.

GOZO. A huge slab of limestone, half raised from the ground, may be seen not far from Xaghra village at Gozo, in a field called Jnien mrik, in the district Ta Ghain Xeiba. It is a roughly squared monolith propped up at one end by a smaller block, both made of coralline limestone quarried from the local rock. The recumbent stone is 20 ft. long with an average width of 16 ft. and a thickness varying between 4 and 2 ft. A portion of the stone is detached from the main body but so closely pressed against it that there can be no doubt that they both formed part of the same stone.

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

MINOR MEGALITHIC REMAINS

A number of megaliths partly arranged as walls and partly standing alone or massed together, can still be seen on the rocky plateau south-east of Zurricco, close to Wied Moqbel or Wied Ta Branda. Other megaliths, apparently detached from regular buildings, are still to be seen in the following localities: at Mtahleb to the extreme west of Malta, at Fomm ir-rieh between Bahria and Jneina bay (west coast); on the Jneina plateau near the tower known as Ta Lippia; at Li Skorba, Sebbieh, on the way to Ghain Tuffieha; at Hal Jinwi to the south of Zeitun; at San Anard, not far from the fort of the same name, district of Zabbar; at Xropp il ghajin, on the east coast not far from the Tas-Silj fort; at Bahria, on the west coast in the fields overlooking il Blata tal melh, and in more than ten other sites such as Pellegrin, Pwales, Salina Bay, Hal Resqun, Tal Bakkari, It-Tumbata at Casal Luka, Id-Debdieba (fig. 1) near Mqabba, etc.

At Gozo, there are imposing megalithic remains on the plateau Ta chench, to the southwest of the island; Borg tal Mramma, in the district of Xaghra, the ruins of Santa Verna excavated in 1911; at Ghain Sielem, on the road leading to Victoria, the group known as Limreisbiet; southwest of Victoria the extensive ruins in the district of Ta maiziena, besides the remains at Cape San Dimitri, il Hodba ta Wied Harriq, il Hodba tal Ghain, il Hodba ta Mliet, Tal Qaghan, etc., the most important being the group of magnificent temples at il Jigantia in the Xaghra district.

THE COMPLETE MEGALITHIC BUILDINGS

Besides noticing the minor neolithic remains of these islands it is well to give a cursory glance at the megalithic buildings methodically arranged for a definite purpose such as dwellings or sanctuaries. It is astonishing how numerous these buildings must have been in the Maltese islands. Some of them in the course of ages have partly or completely disappeared; but those that still remain are sure evidence of the activity of a race already formed into a large, organic and peaceful society.

The number of buildings is more bewildering than their magnificence. If the islands had only one or two complete megalithic structures one would feel that the neolithic population had raised a monument to the Power they believed in, or in honour of a hero or for the hero's use, but when these complete dwellings, towers or temples, whatever they

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may be thought to be, are met with all over the island the explanation of their presence is certainly perplexing.

In this work of compilation, however, it is useless to go deeply into this interesting question, and the author feels that he must confine himself to a simple list of these extraordinary monuments.

CORRADINO (EASTERN GROUP)

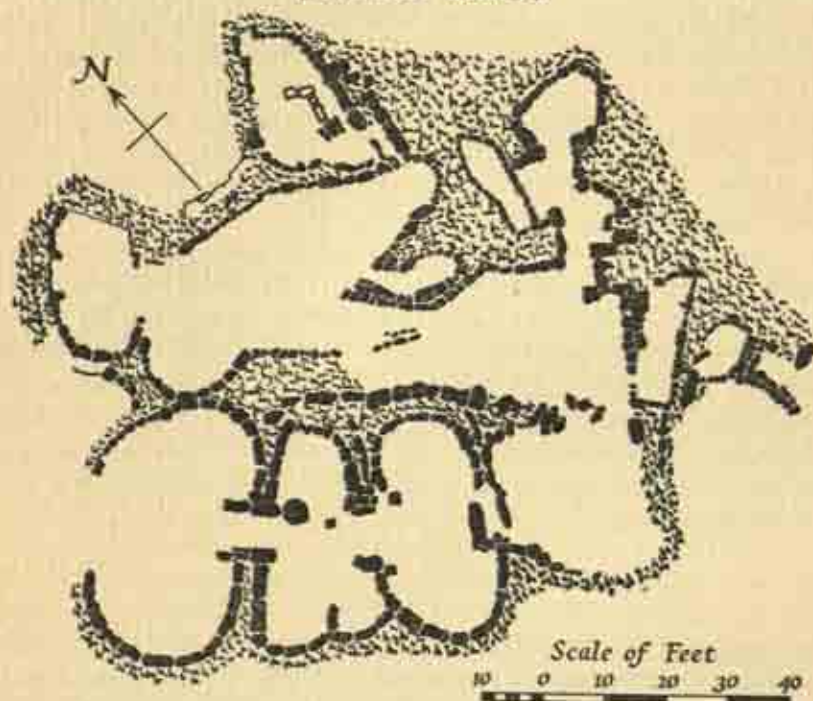


FIG. 2

Standing on the shores of the Grand Harbour the importance of this splendid haven is shown by the number of megalithic monuments surrounding it. We can only mention what remains on the southern shores, for those that were probably raised on the northern side were completely demolished when Valletta was built on the Mount Sceberras in 1568. The southern heights of the harbour are known as Il Kortin, a name which later was changed to Cordin or Corradino.

Five groups of megalithic ruins were described by Dr A. A. Caruana in the *Archaeological Journal* (1896); a sixth group was

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

discovered in 1919. Only two of the groups seen by Dr Caruana can now be traced near the oil tanks, to the west of the detention barracks.

WESTERN GROUP (CORDIN). The western group of the Cordin ruins occupies an area of about 50 square yards. What remains of the building is hardly sufficient to give the outline of the original plan. The megaliths are disposed so as to form circular enclosures with an entrance to the northwest. An elliptical room is still recognizable. This adjoins a wide space divided into three circular rooms, whilst to the northeast an elongated space is also enclosed by carefully placed megaliths. The rest is a mass of loose blocks, slabs and debris.

EASTERN GROUP (CORDIN). This group (fig. 2) is in better preservation than the first and is more extensive. A series of four elliptical enclosures to the southwest are connected by a central corridor. To the northeast, enclosures grouped in series appear to have existed together with a number of detached chambers. The main entrance is to the northwest. The walls are made mostly of roughly dressed slabs; the floor consisted of large flagstones and in part of beaten earth (torba floor). Pillars, round stones, and numerous stone implements were found and numerous potsherds characteristic of the Maltese Stone Age.

SOUTHERN GROUP (IXXAGHRA). This group (fig. 3) lies outside the naval boundary wall to the south of the public road leading up to the Cordin hill from Ras Hanzir. It was discovered and excavated by Dr Thomas Ashby, Professor Eric Peet and the writer in 1909.* It is enclosed by a wall and reached through an iron gate of which the key may be had from the caretaker of the Hal-Saffieni Hypogeum.

The ruins occupy a space of about 1400 square yards and consist of two main groups with a common circular forecourt about 50 ft. in diameter, roughly paved with flagstones and cobbles.

The two groups have a separate entrance looking south. The group on the left (west) is reached through a well constructed gateway made of large slabs on end. The corridor beyond the entrance is well paved and soon widens into a yard with a semicircular space on each side and a deep apsidal room in front. On the left side of the yard a hard-stone trough, 8 ft. 9 ins long and 4 ft. wide, is neatly divided into seven oval compartments caused evidently by constant rubbing. It appears that seven persons could lean or stand against the trough and grind corn. (Plate 1).

* 'Excavations in 1908-11 in Malta and Gozo'. *Papers of the British School at Rome*, vol. VI.

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In a room to the south, three niches are built against the curved part of the wall.

The second group of ruins, on the eastern side, has a separate entrance from the common forecourt leading to a corridor on which two circular rooms open, one on each side, the one on the left being larger than the one opposite to it.

IXXAGHRA TA CORDIN.

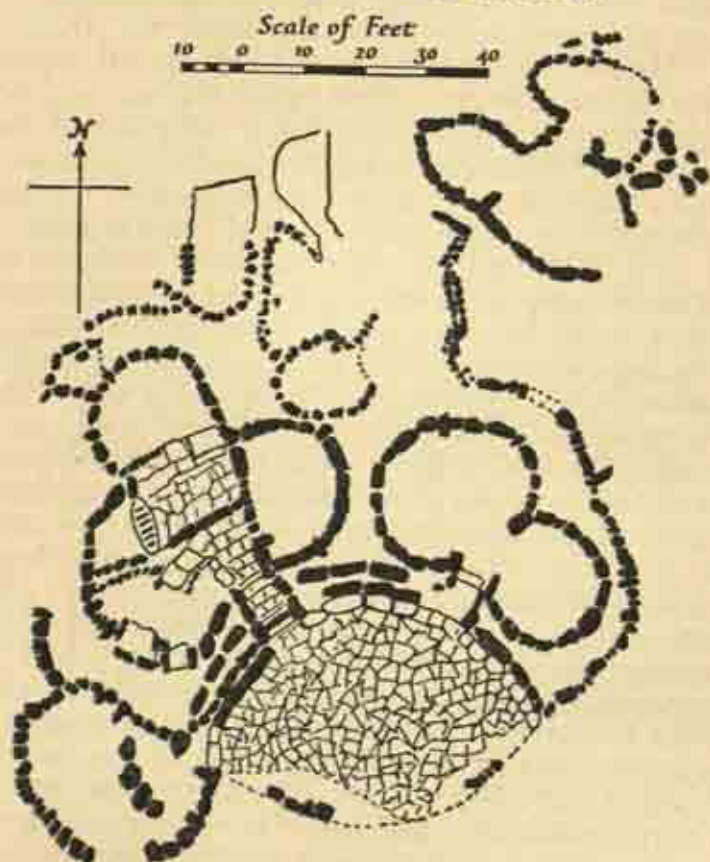


FIG. 3

Apparently a third gateway with an eastern aspect led to a set of rooms independent from the two groups, but of these buildings only the northwestern wall can be made out, the rest being dilapidated and quite beyond the hope of reconstruction. Cylindrical stone pillars, stone pounders and grinders, slingstones and numerous flint implements

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

were obtained from the ruins. A few shell and bone objects, and an enormous amount of potsherds of the finest neolithic type of Maltese ware, were found during the excavation of the site. The most important objects discovered are in the Valletta museum.

THE TARKIEN GROUPS. Not far from the Corradino ruins, another group of megalithic buildings can now be seen to the southeast before reaching Tarkien (Tarshien).

The monument was completely buried under field soil until 1914, and nothing on the surface pointed to its existence. The farmer who rented the fields near Tal-Erwieh cemetery volunteered the information that a certain depth below the surface his tools struck blocks of stone; this led the Curator of the museum to investigate the site, which was completely excavated in about six years.

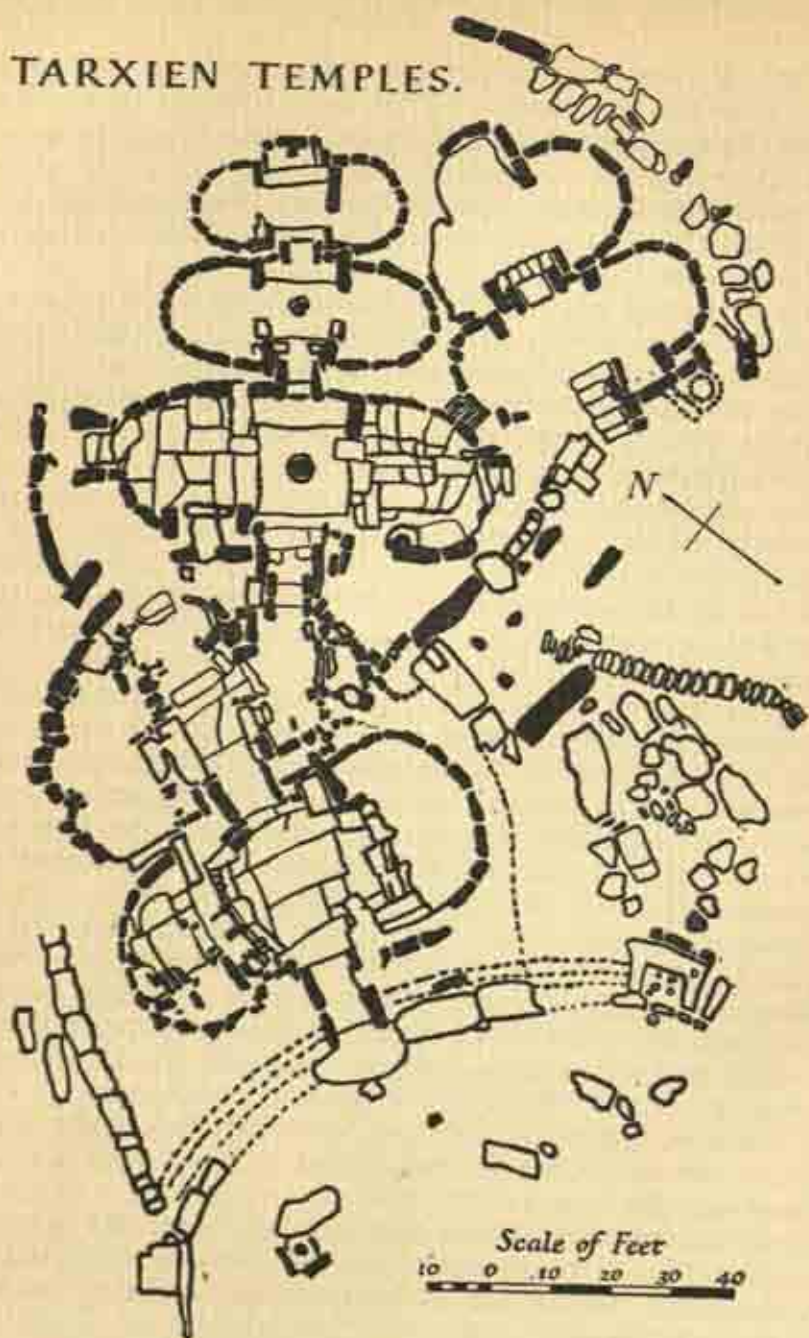
This magnificent megalithic monument consists of three groups of buildings which the excavator believes to be temples, of three different periods, but all of them in the Stone Age, or at least before the diffusion of the Bronze Age culture. The temples are freely connected with each other, and at present they have a common approach from a large semicircular forecourt. (Fig. 4).

The first temple, supposed to have been the earliest of the three to the northeast, had a regular entrance flanked by upright blocks of stone across which a high step was laid. This led to a central corridor in a NW-SE direction along which two sets of semicircular apses are disposed. No decorations whatever are to be seen in this building but the northeast apse was connected with a room which was probably used as an oracular chamber.

The second temple (plate II) was originally reached from the south, where the third temple was later on constructed and which, probably, occupies the site of its forecourt. A passage, over 20 ft. long, leads to an elliptical space about 50 ft. long at right angles to it, ending in an oval apse at each end with a circular fireplace built in the middle in front of the passage. The southern wall of this elliptical enclosure is pierced by two gateways, one to the right and one to the left of the corridor, leading into two comparatively small rooms. On the walls of the room on the east side the figures of two bulls and a sow are cut in relief.

Beyond this elliptical space a high threshold is laid in front of a ten foot corridor flanked by two semicircular apses, in which two stone screens decorated with spirals in relief are still standing (plate III). Beyond this, another high threshold is found before one reaches a pair of circular apses of smaller dimensions. This second temple is built

TARXIEN TEMPLES.



Pl. 4

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

with great care and some of its stones are decorated with spirals in relief. (Plate iv).

The third temple, reached from the forecourt to the south, has a huge convex slab for a threshold, beyond which is a short passage paved with a single block of stone. The passage leads to a square space flanked by an apsidal room on each side, in front of which are beautifully decorated blocks (plate v). The remains of a colossal stone idol stands on the side of the right apse. In the left apse are the remains of an elaborate chapel in which carved blocks and two friezes representing sacrificial animals are still to be seen (plate vi).

The main corridor extends further north to a semicircular shrine on a high platform, of which the front is decorated with a delightful pattern of spirals. An apse to the left of this platform is connected with an archaic shrine, and, to the right, the eastern apse, symmetrical to the one to the west, was modified to afford an entrance to the second temple.

During the excavation of this site it was found that the floor of these temples was covered with about 3 ft. of silt, a sandy dust that had spread over the site in the long length of time during which the monument was a heap of ruins. After this accumulation of soil a Bronze Age people made their appearance in Malta; they disposed of their dead by incineration, and utilized the open space under which the Stone Age remains were buried for the deposition of their cinerary urns.

There is a large collection of stone, bone and copper implements, amulets, statuettes, clay vessels and potsherds in the Valletta museum which illustrates the Stone and Copper Age cultures of the people who at different times made use of the Tarxien buildings.

HAL SAFLIENI HYPOGEUM. Near the Tarxien megalithic ruins, to the southwest, is an underground series of caves, passages and cabins, with trilithons both carved out of the solid rock and built in front of them, which was discovered in 1902 at Paula and opened to the public about five years later. (Fig. 5).

The entrance to this interesting hypogeum was originally in the Hal Saflieni Street, in which remains of a gateway and other upright slabs were met with. As houses were built on the surface, the Government made an entrance in Catacombs street. A shaft, about 30 ft. deep, was sunk and the hypogeum cleared through it. The place is now provided with electric light, and a caretaker who lives close by is in charge of the monument.

The hypogeum has three distinct storeys. The highest is connected

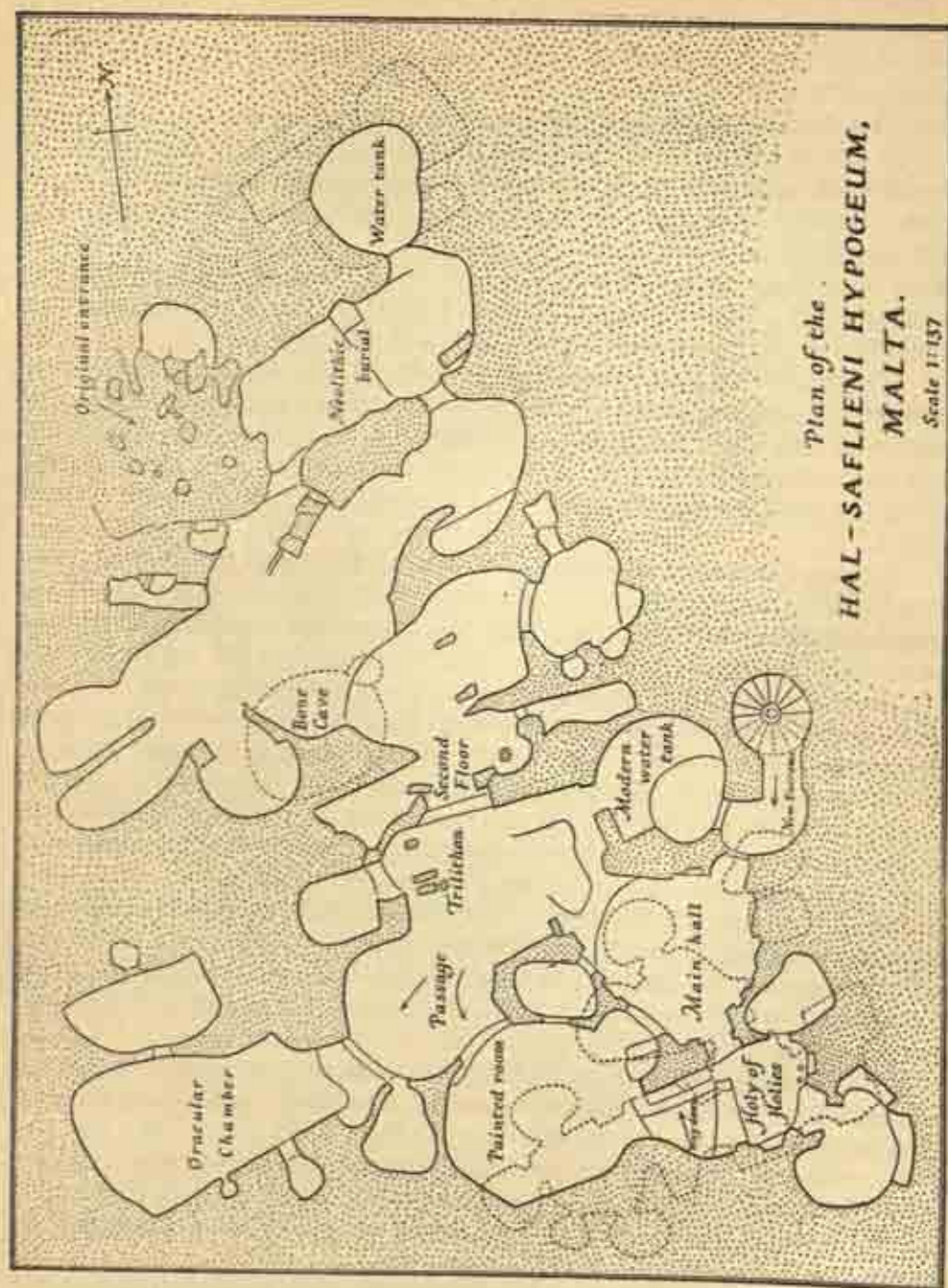


FIG. 5

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

with the original entrance. The middle one, the largest of the three, contains a main room, a number of small chambers and two painted rooms, one of which was, in the writer's opinion, an oracular chamber. The lowest storey is reached by a flight of steps, in part built and in part cut in the rock. It appears that the site was used for different purposes in two distinct periods. When first dug out, it served the purpose of a sanctuary and for the consultation of an oracle. It is probable that it was also a place for initiation into the mysteries of priestcraft. In later days, at the end of the Stone Age, the place, with a reputation of great holiness, was used for burial purposes. The caves were filled up with red field soil, in which about *seven thousand* persons were buried. Neolithic pottery and numerous ornaments of shell and polished stone were found with the bones.

The cutting of this underground monument was a gigantic undertaking which must have taken ages to complete, and the people who planned it must have reached a high degree of culture and civilization.

KRENDI MEGALITHIC RUINS. West of Krendi village, about 7 miles from Valletta, there are two interesting groups of ruins not very far from each other:—Hajar Kim and Mnaidra with their water supply known as Il Miska.

HAJAR KIM. The name means 'The Standing Stones', for only the uprights standing out of a mound could be seen, before the year 1839, when the excavation of the site was undertaken by Mr Vance of the Royal Engineers. The monument is approached from a straight road on its eastern aspect. Once beyond the iron gate, the visitor reaches a semicircular forecourt paved with large irregular cobbles. The façade consists of six limestone slabs on end with rectangular blocks at their base. The main entrance in the middle of the façade has a southeastern prospect. (Plate VII).

To the right of the forecourt, a tumbling mass of stone blocks must have been dwelling places, store rooms, or pens for sacrificial animals, for the main building has all the features of a sanctuary. At the back of these disarranged blocks, there is a series of chambers, with an entrance to the north, evidently an annexe for the convenience of those who ministered the rites in the temple.

The main entrance in front of the forecourt leads to a long corridor originally flanked on each side by two sets of deep apses and ending in another entrance to the north. The first pair of apses is reduced in size by large slabs on end, pierced by square openings once fitted with doors or curtains. The central area between the apses is paved with flagstones

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and surrounded with well squared blocks used as seats or as low altars, originally decorated with pitmarks (plate VIII).

Beyond the set of apses there is a second paved space, and an elaborately built apse on the right, with an enclosure made of comparatively thin slabs on end, badly eroded through exposure. In the eastern wall there is a large oval hole through a slab, opening on the outside into a closed chamber now in ruins, probably used as an oracular room. To the left of the central space there is a long court with two trilithons built in the left wall, and one in the right wall, close to the entrance to a set of rooms. These were once fully decorated with pitmarks; at the entrance two curiously shaped altar tables stand on a rectangular foot. This long court appears to be a rearrangement of the western apse which was at sometime pulled down, and four elliptical enclosures, each with a separate entrance, one inside the long court and the others on the outside, were built.

Walking round the ruin, the visitor is struck by the size of the slabs and the pillars forming the outer wall. One of the pillars is 17 ft. high and the last slab to the southeast is 2 ft. thick, 9 ft. high and 23 ft. long.

A small group of ruins, about 30 yards to the north of the one just described, is in a bad state of preservation.

MNAIDRA. Leaving Hajar Kim by a path to the west, another megalithic building is reached at the bottom of the hill. It is a fine building overlooking the sea and the islet of Filfla, about 3 miles away. It differs from that at Hajar Kim, which is of a yellowish soft stone easily squared and rubbed smooth, whilst Mnaidra is mainly built of hard, rough, reddish coralline limestone most difficult to work. (Plate IX).

Mnaidra (fig. 6) consists of two separate buildings at a different level. The first has a southeastern aspect. The façade is made of the same stone as Hajar Kim; it has two gateways, the one to the right, though broken, shows that it consisted of a huge slab pierced by a square opening; the one on the left is dilapidated. Beyond the entrances is an elliptical area 54 ft. long and 24 ft. wide, enclosed by a carefully built wall of slabs on end surmounted by ashlar masonry, which, originally, were corbelled up to form a dome at each end. The floor is made of beaten earth and broken stones. Parallel to the first two apses is another set of semicircular apsidal chambers 45 ft. long from end to end, and 20 ft. broad at their widest part. The walls are made of well squared slabs set on end and capped by rectangular blocks of stone.

In a deep recess, at the back opposite the entrance, a stone slab 10 ft. long and 6 ft. wide stands like a huge table supported at each

PLATE II



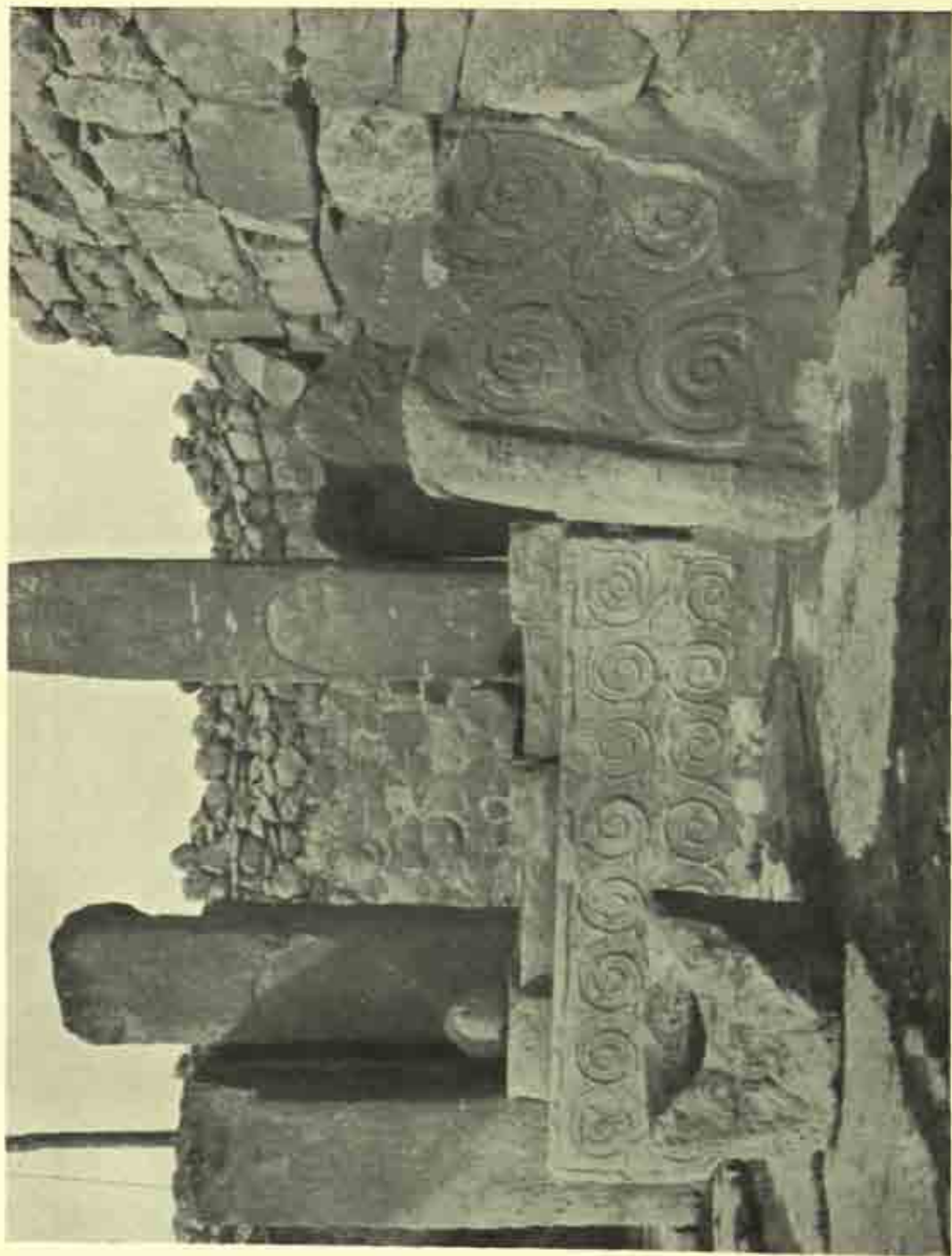
TARSIEN—THE SECOND TEMPLE, WITH CIRCULAR FIREPLACE
Ph. North & Chaptoun

PLATE III



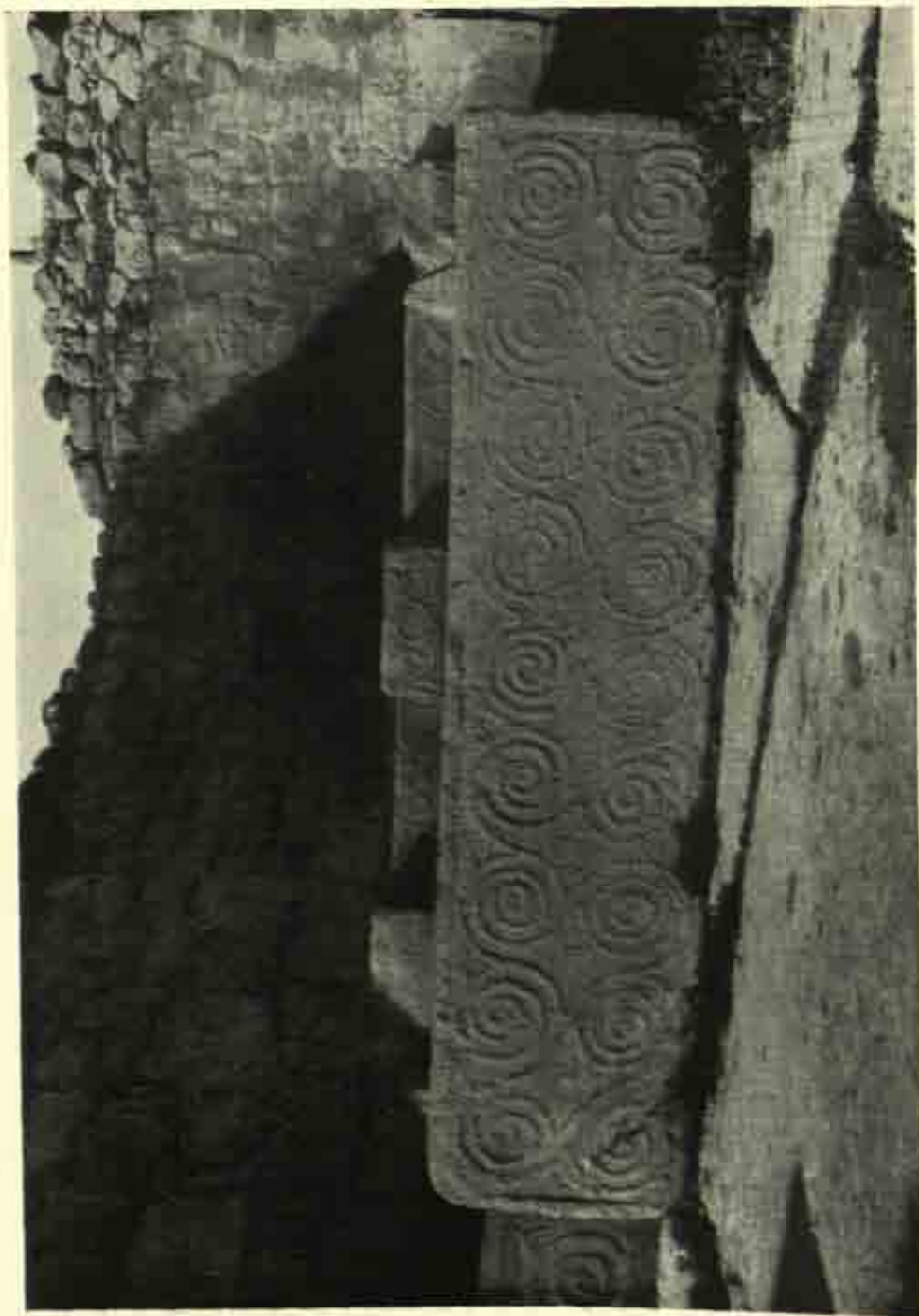
TARXIEN—ONE OF TWO STONE SCREENS DECORATED WITH RAISED SPIRALS
Pk. North S. Clagstone

PLATE IV



TARXIEN—DECORATED BLOCKS WITH RAISED SPIRALS
Ph. Norah S. Chigstoun.

PLATE V



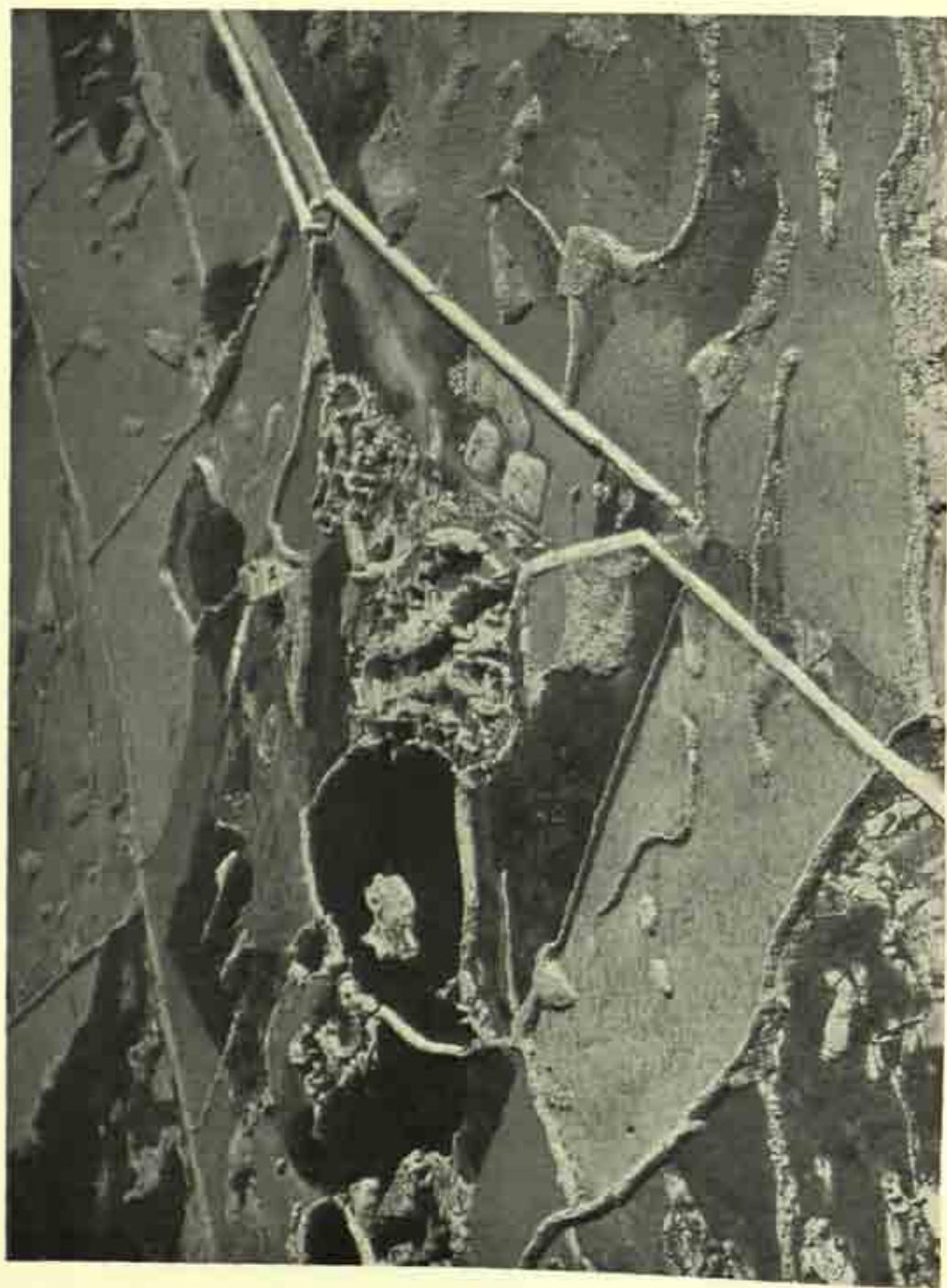
TARNIEN—DECORATED BLOCK IN FRONT OF APSIDAL ROOM
PH. NORAH S. CLOUTON

PLATE VI



TARSUS—FRIEZE REPRESENTING SACRIFICIAL ANIMALS
70. Mr. E. Gardner

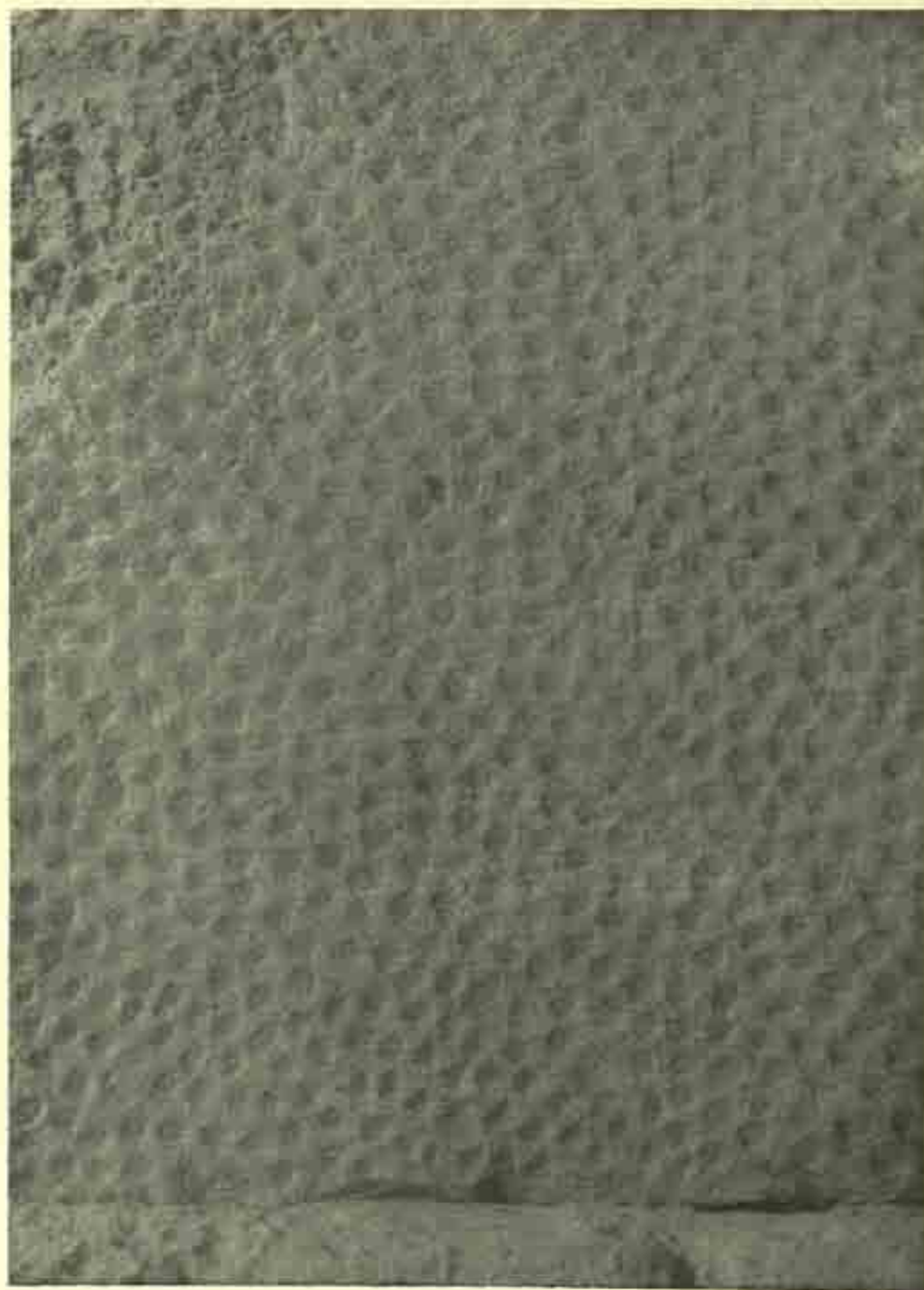
PLATE VII



HAJAL KİM

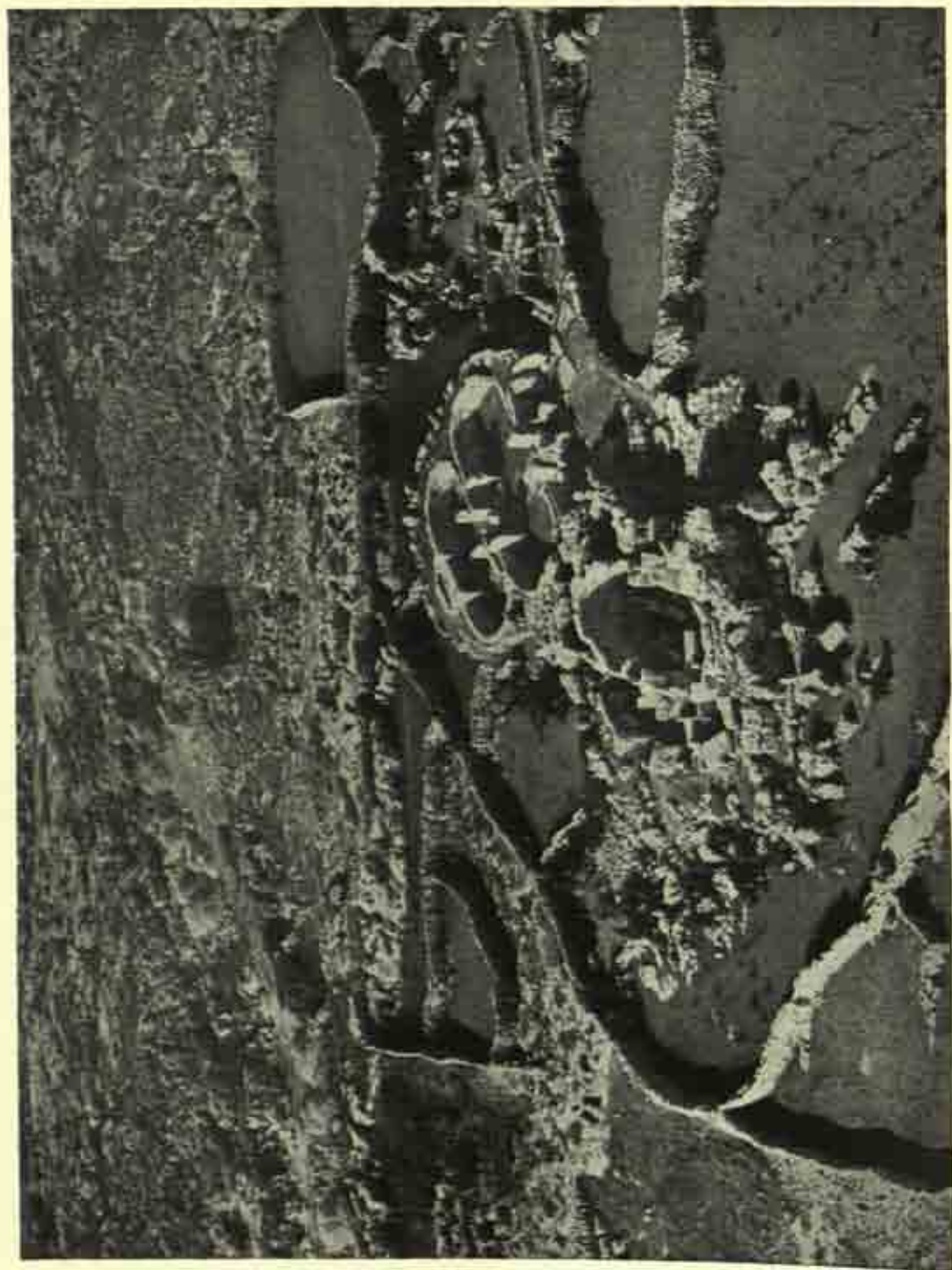
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PLATE VIII



PITMARKS ON SLAB OF *GLOMERINA* LIMESTONE AT HAJAR KIM
Pl. Norah S. Clogston

PLATE IX



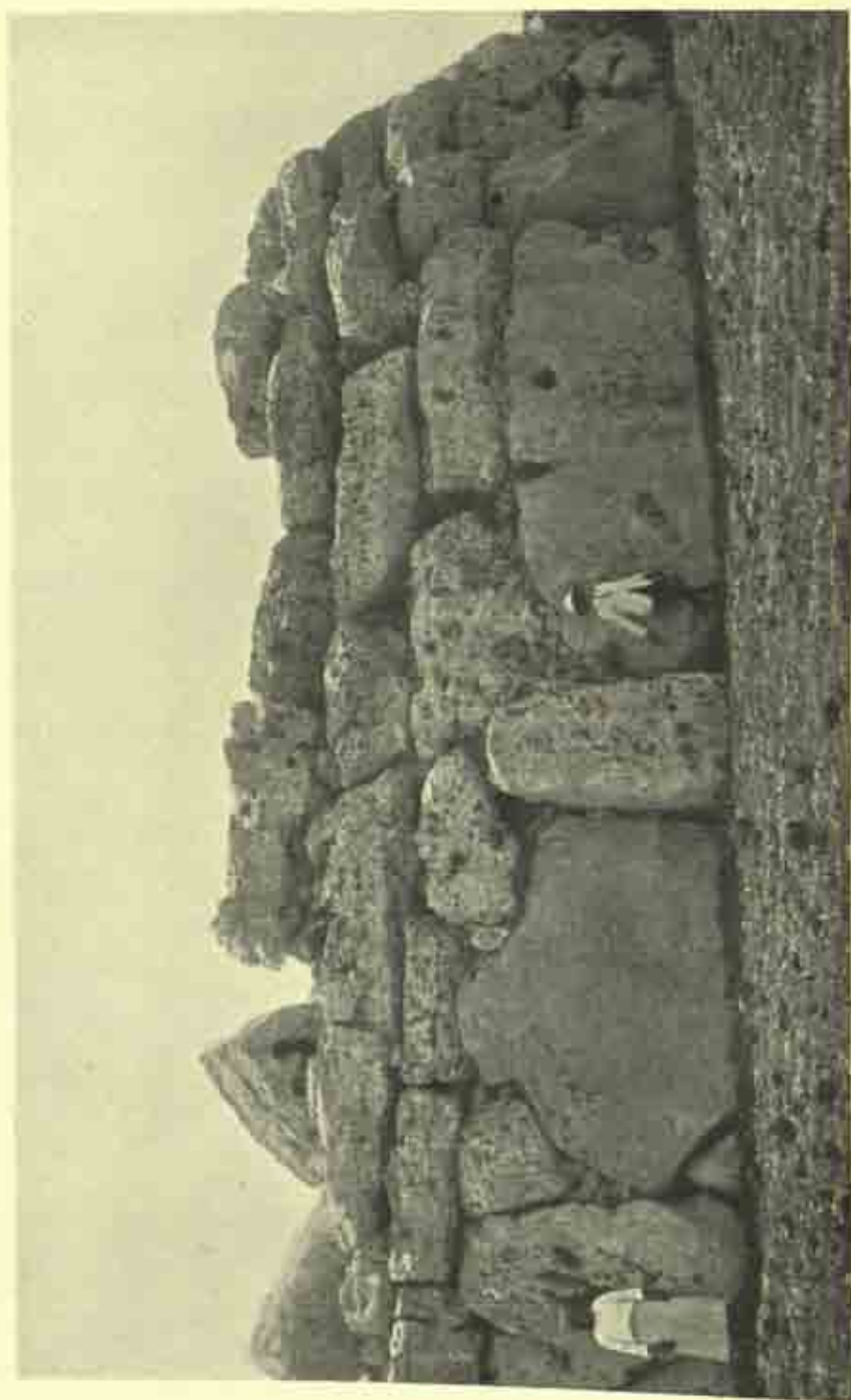
MNAIDRA
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PLATE X



RUHIYA—FRIEZE REPRESENTING A SET OF FISHES
PA. Mr. E. Gooder

PLATE XI



OUTER WALL, JIGANTEA, GOZO
PH. Sir T. Zamm

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

end by a pillar, about 5 ft. from the ground. The wall of the eastern apse is plain, that of the western apse is pierced by a window-like structure of highly finished stones, beyond which is a deep niche with an altar at the back.

The second building, at a lower level, has a fine entrance looking due east. The outer wall is made of masses of a rough reddish stone piled up to a considerable height. A semicircular forecourt is paved with cobbles, and large quadrangular blocks laid in front of the wall afford sitting accommodation. The gateway and the passage beyond

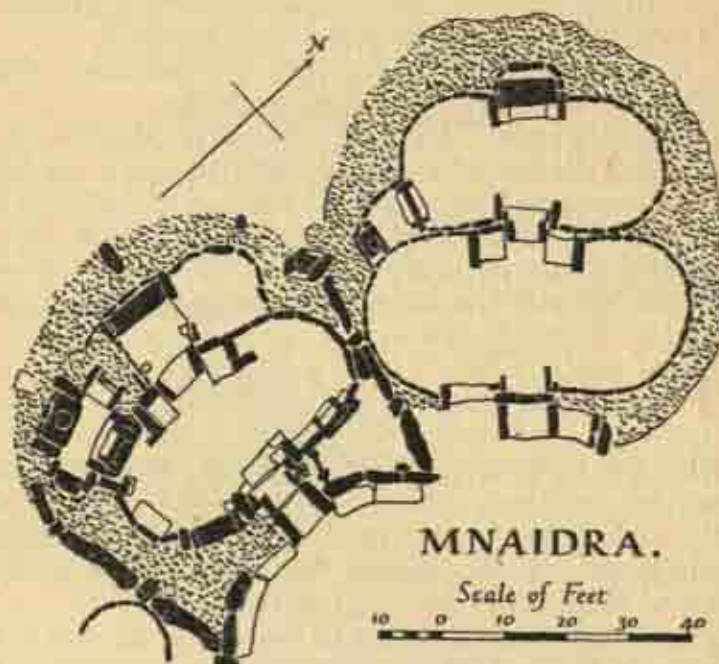


FIG. 6

are carefully paved. The first space reached is elliptical, 45 ft. long and 23 ft. wide. In front is a magnificent trilithon. On each side there are well squared and gracefully pitted footstones and vertical slabs.

The right apse, made of large slabs on end, shows numerous courses of masonry laid to form a dome.

A side chapel is reached through a square entrance cut in a slab; it has a dainty niche on the right with an altar at the back. To the left, the chapel ends in a double shelved corner secreted under huge blocks of coralline limestone converging at a remarkably acute angle.

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To the left of the main court is a most striking entrance to a space at the back. It consists of a huge trilithon under which a pitted slab, forming the lintel of another trilithon, reduces the entrance to a gateway. In a rectangular chamber at the back, two double-shelved niches are built up in two recesses.

A passage at the back is lined with large slabs on end kept apart by other slabs laid horizontally between them. To the extreme right of the passage an outer semicircular apse has a beaten earth floor and roughly built walls. Cartloads of the best neolithic pottery were found in and outside this ruin, when these temples were re-excavated in 1910. The first excavation in 1840 yielded very little material.

In the Valletta museum is exhibited a remarkable collection of objects from these two very interesting buildings.

MISKA WATER TANKS. To the northeast of Mnaidra the ground slopes up to a flat plateau of a compact rock in which six large water reservoirs were cut in neolithic days for the use of the temples below. The tanks are bell-shaped and vary in depth; some of them are connected with each other but have separate mouths. They are now mostly full of stones thrown in by idle hands. The size of these reservoirs and the technique of their cutting and covering testify to their age.

The visitor may find the climb a stiff one, but the interesting features of the tanks and the view one gets of the wild country round repay the inconvenience of the rough going.

TA HAJRAT (MJAR) RUINS. A mound of earth through which blocks of stone emerged was excavated in 1925-27 on the site known as Ta Hajrat (of the stones), at the entrance of Mjar village in a field in front of the Government school. Strada San Pietro leads straight to it. Mjar is about $9\frac{1}{2}$ miles to the west of Valletta.

The ruins consist of two groups of buildings, the one to the south being distinctly of the Stone Age, whilst the smaller group to the north is evidently the work of a later period. The earlier building, with the main axis in a SE-NW direction, consists of a slightly concave front about 50 ft. wide with a well constructed gateway in the middle. Two steps lead up to a corridor flanked by large hardstone uprights on which, originally, horizontal slabs were laid, to cover part of the entrance. The two hard stone slabs measure 9 and 8 ft., respectively, in length.

The corridor in front of the entrance, 16 ft. long, is paved with large stone blocks; at the end is a paved rectangular space surrounded by large slabs on end. Laterally, on each side, a doorway leads to an elliptical chamber built of roughly squared blocks. The one on the

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

west shows a thick curved wall built to the south, which reduces the chamber very considerably; the one to the east has its apsidal end intact but the northern wall is completely removed. In front of the rectangular space is a circular room 13 ft. in diameter; its walls are made of roughly hewn blocks of stone.

In plan (fig. 7), this part of the building has the appearance of a three-lobed figure, like the ace of clubs on a playing card.

Later, evidently in the Copper or Bronze Age, the place was enlarged by building smaller enclosures to the northwest of the eastern

TA HAJRAT. MJAR, MALTA.

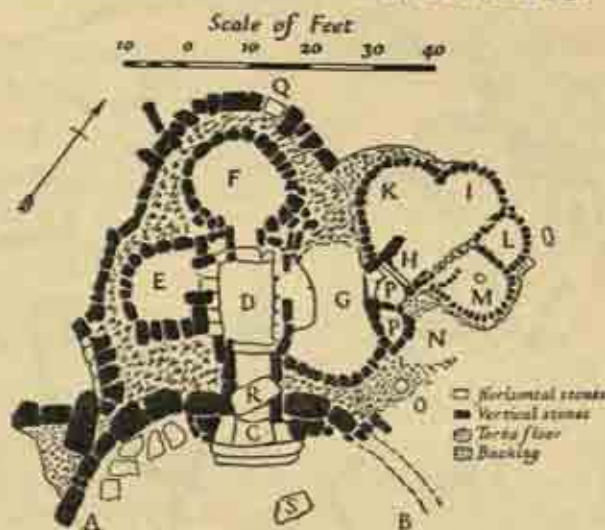


Fig. 7

apse. This later building is made of smaller stones but the trefoil arrangement was retained.

The objects collected from the excavation of this site confirm the evidence given by the architectural features. Pottery, flint implements, and other objects characteristic of the Stone Age, were obtained in considerable quantity, whilst from the northeastern ruin pottery and objects of the Bronze Age were mostly in evidence.

The vicinity of the ruins of Li-Skorba at the entrance of the Mjar village points to the importance of this site in neolithic times.

TAL QADI RUINS. Very interesting megalithic remains were uncovered lately in the St. Paul's Bay district, at Tal Qadi, the name of

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a tract of land on the road called Ta limdawwra which opens from the Naxxar road to the northwest leading towards Salina Bay.

The site is badly dilapidated, but two large semicircular apses with a paved passage between them can still be made out. More remarkable are four huge blocks of stone, now prostrate, which were once horizontally set up on smaller blocks forming a kind of *allée*

BORG IN NADUR, MALTA.

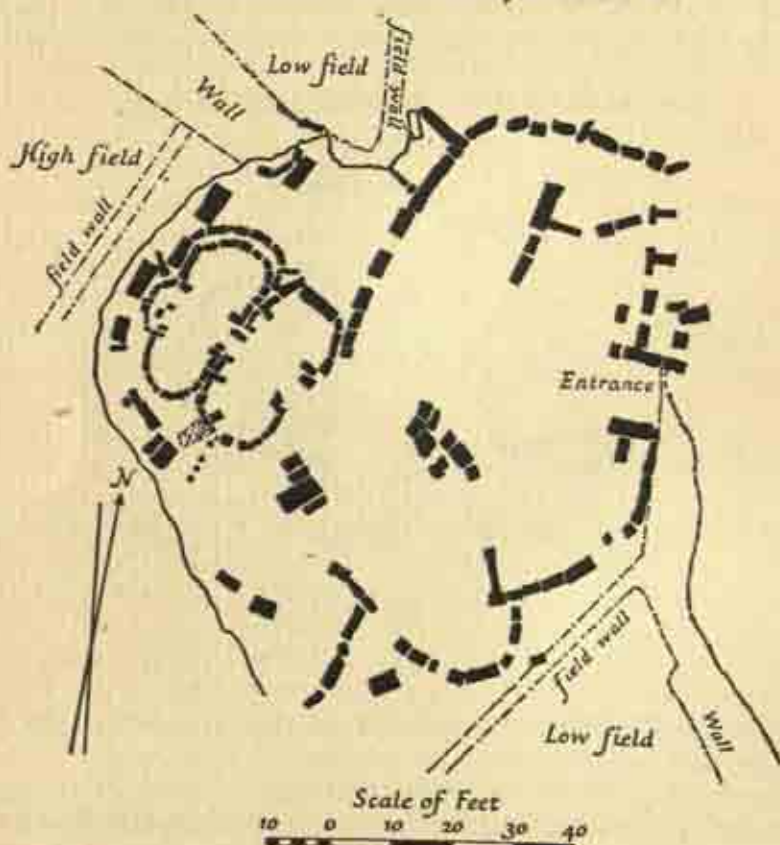


FIG. 8

couverte. The pottery and the flint implements met with are clearly of the Stone Age.

TA BUJIBBA. On the eastern shore of St. Paul's Bay known as Bujibba, on the road leading to Qawra point, the remains of a neolithic building were partly excavated in 1928. The attention of the excavators

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

was attracted by megaliths grouped in a field to the right of the road. The site was ruthlessly broken up by people who tried to make an arable field of the ruins. So far excavation has shown that remains of an elaborate building have escaped destruction and two elaborately carved stones were found. One of these shows groups of spirals in relief, and the other has a frieze cut on two sides of the stone representing a series of fishes (plate x). When the excavation is completed it is hoped that a plan of a portion of the original building may be made.

BORG IN-NADUR. To the southeast of the island, overlooking the bay of St. George of Birzebugia, an extensive megalithic building



(fig. 8) extends over the plateau to the right of the road leading to the bay. The ruin is reached from the narrow road to the right of the small chapel not far from the sea-shore.⁷

A megalithic wall about 180 ft. long extends in a SE-NW direction. The remains of three circular enclosures have been uncovered. Beyond the main entrance, in the shape of a huge trilithon, is a wide elliptical area about 50 ft. long and 40 ft. wide. A smaller area at right angles to the first one ends in an oblong forecourt and two parallel elliptical chambers. The corridor in the middle ends in a curved recess.

⁷ See *Man*, XVI, no. 1, 1916; A. Mayr, *The prehistoric remains of Malta*, 1908; M. A. Murray, *Excavations in Malta*, London, 1923 and 1925.

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The site is distinctly neolithic though it was used in later days by a Bronze Age people. A collection of stone implements, flints, and potsherds, of Neolithic and Bronze Ages, formed by Miss Murray, is shown in the Valletta museum.

THE JIGANTEA AT GOZO. Gozo, the sister island of Malta, whose local name is Howdesh, contains important archaeological remains, the most remarkable being the so-called Giants' tower. Driving up from the

JIGANTEA, GOZO.

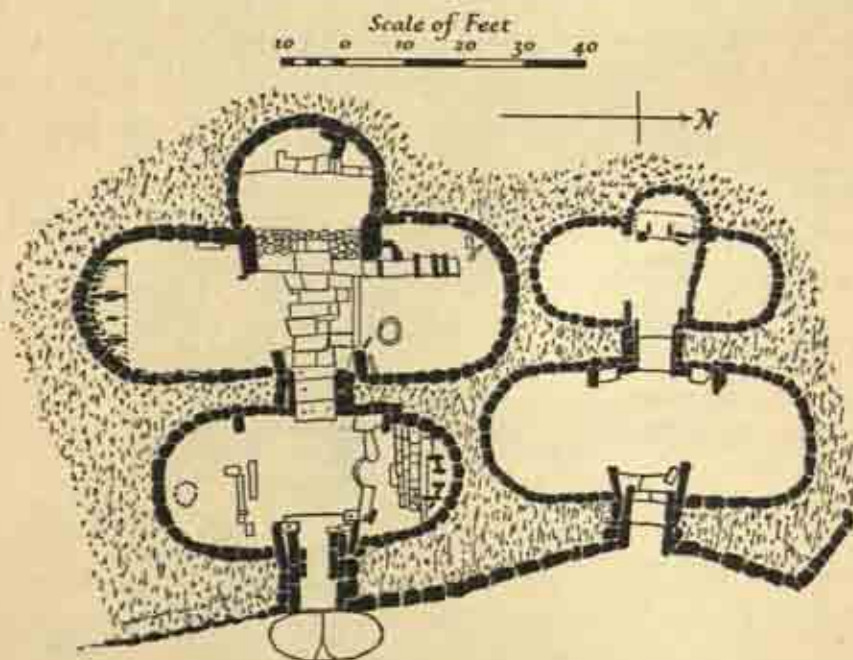


FIG. 9

quay towards Victoria, the huge monument is seen towering on the high plateau to the east of the village of Xaghra or Katcha, to the right of the main road. The entrance is in the bend of the steep road leading to Xaghra and the ruins are reached after walking through several fields to the east.

The ruins were excavated in 1827 and abandoned since that date; this explains the dilapidated appearance of the monument, which was left to the mercy of endless generations of children and to the inclemency of all weathers. They are however more striking than any of the Maltese ones, the outer walls being built of the rough crystalline limestone quarried in the neighbourhood (plate XI).

PREHISTORIC REMAINS OF THE MALTESE ISLANDS

Jigantea (fig. 9) resembles very much the Mnaidra group of ruins. It consists of two separate buildings, each having two sets of parallel elliptical areas. The southern temple is the larger of the two. A paved corridor, starting from a magnificent gateway, leads to an elliptical area 52 ft. long with a spacious apse at each end. Blocks of carved stone, greatly damaged through exposure, are laid along the walls. The second elliptical enclosure, 70 ft. long, contains debris of niches and altars and also several carved blocks. A Phoenician inscription of ten letters is cut on a flagstone on the floor of the main corridor, at the end of which is a semicircular apse at a slightly higher level.

The northern building is not so elaborate as the first one; there is no doorsill at the entrance and the elliptical areas are smaller.

The outer walls of both temples are made of huge hard stone blocks. The slabs and blocks of soft globigerina limestone must have been quarried miles away from this site as no trace of this rock exists in the vicinity. Most of the uprights are about 16 ft. high, one of them being fully $17\frac{1}{2}$ ft. long and $12\frac{1}{2}$ ft. broad.

The potsherds met with in these ruins are of the Maltese Stone Age type. Unfortunately, however, no systematic excavation has ever been carried out in these ruins, and the pottery and other objects buried in them were either destroyed in the course of ages or thrown about carelessly when the site was cleared in 1839. It is still in private hands but one may hope that the temples will be thoroughly searched and eventually repaired when the Government acquires them.

SANTA VERNA. A few megaliths are the only visible remains of the site excavated in 1911^{*} at a place called Santa Verna. This is not very far from the Jigantea and one has only to follow the steep incline leading to Xaghra, when, taking the first turning to the left, close to the small chapel of Sant Anton, a lane is reached leading to an open space on which the mound of the ruins comes in view.

When excavated, five enclosures were cleared containing fire-places, ashes, remains of food and a considerable amount of exquisite potsherds, clear evidence of a Stone Age settlement. Some of the potsherds, now in the Valletta museum, are superior in technique to any found at Tarxien; the flint implements also show excellent workmanship.

This site must have been selected for the building on account of its unrivalled position, commanding, as it does, a fine view of the steep surrounding hills, the rich deep valleys, the charming bay of Marsalforn and the deep blue Mediterranean in the distance.

^{*} See *Papers of the British School at Rome*, vi, 105.

Population and Agriculture in Roman Britain

A reply

by H. J. RANDALL

IT is with great diffidence that I venture to make a few criticisms upon certain aspects of Mr R. G. Collingwood's most suggestive paper in the September number of *ANTIQUITY* on 'Town and Country in Roman Britain'. He is an expert, I am an amateur; he has probably forgotten more about Roman Britain than I ever knew; but the points that I desire to discuss are matters of general inference rather than of expert knowledge.

It is extremely desirable that we should have an attempt to estimate the population of Roman Britain based upon scientific principles. As no statistics are, or can be, available, any attempt must be largely guesswork; but 'shrewd guessing' based upon such evidence as we have is one thing; and pure guessing based upon what the guesser thinks that the population ought to have been, is another. Mr Collingwood has for the first time worked out the problem upon definite principles and has arrived at a result of about half a million as 'something like a maximum estimate'.

I do not desire to question this result, but it is another matter altogether when it is worked out as 'under 9 to the square mile' and this is made the foundation for the inference that the Romano-Britons 'practised a primitive form of agriculture, and not only that but stood quite low down in the scale of even primitive agricultural methods'.¹

Apparently Mr Collingwood has accepted from Professor Carr-Saunders the dogmatic proposition that a population of less than 9 to

¹ A little more information about the basis of the computation would be useful. The quotient of 'under 9 to the square mile' is apparently based on the area of England and Wales (58,340 square miles) including the portions of Northumberland and Durham lying beyond the Roman Wall. It is compared with an estimate of 26 to the square mile in 1066. No information is given as to how the figure was obtained, but presumably it is based upon the Domesday Survey of 20 years later. Wales was left out of Domesday for obvious reasons, and we have no means of obtaining even an estimate of the population of Wales in the eleventh century.

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the square mile presupposes a very primitive agriculture. It is laid down as a principle without any qualification whatever. It seems to be clear that if it is true at all, it can only be true under certain rigidly defined conditions.

One obvious qualification is the area upon which the computation is made and the extent both of the cultivable land and the land actually cultivated within that area. For example, any attempt to estimate the agricultural efficiency of Australia upon a calculation of the average population per square mile would be nonsensical; because the area of desert is so large that only a limited portion of the island continent can be cultivated in any fashion. This limitation applies in a lesser degree to Roman Britain because large areas of it were sparsely peopled and certain areas almost unoccupied.

Consideration of a modern example may be profitable if not conclusive. The island of Tasmania resembles in many ways a little Britain of the pre-industrial ages. Its manufactures are now steadily increasing with the development of cheap hydro-electric power, but the staple supports of the people are still, and 20 years ago were predominantly, agriculture and mining. Yet at the census of 1921 the total population was just 8 to the square mile. Of this population one-fourth is concentrated in the capital, Hobart; this is a very much greater proportion than can be fairly assumed for Roman London. The difference is due to the progress of industrialization, and the population actually supported by agriculture and mining and the industries and trading directly dependant upon them would therefore be considerably less than even 8 to the square mile.

Are we then entitled to assume that the agriculture of Tasmania stands 'quite low down in the scale of even primitive agricultural methods'? The reply of the Tasmanians to such a suggestion would probably be expressive and forcible. The agricultural statistics of the island are quite sufficient to demonstrate the high quality of its cultivation. A modern example of this kind must not be pressed too far, but it suffices to show the danger of arguing from generalized propositions, without close attention to the limiting conditions.

A wise political thinker once said that many political arguments would be settled, or at least diminished in temperature, if people would ask themselves the question 'How much'? How much socialism do I desire, how much protection, how much self-determination, and so forth? So when Mr Collingwood speaks of the primitive

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agriculture of Roman Britain, we would like to ask 'How primitive'? Was ploughing practised or merely spade or hoe work? If ploughing, was the hand-plough or the ox-plough used? If the latter, was it the two-ox plough or the eight ox-plough? Was there any rotation of crops, and if so, what? It may possibly be answered with truth that there is not sufficient evidence available to answer these questions accurately. People accustomed to petrol tractors might apply the word primitive to any of them, but they indicate very definite steps in the progress of agriculture, and very definite differences in the yield of agricultural products. If the questions cannot be answered we are driven to other lines of inquiry.

Mr Collingwood goes on to say:—

'In choosing naturally cultivable soils for inhabitation, the Romano-Britons followed pre-historic usage. . . The "ancient Britons" were driven to cultivate the miserable soils of the mountain-side because they could not face the capital expenditure of clearing the better soils of the valley'.

If this last sentence is meant as a statement of fact and not a figure of rhetoric, it cannot be substantiated. Neither the 'ancient Britons' nor any other people ever attempted to cultivate the 'miserable soils of the mountain-side'. They did cultivate the lighter soils of the uplands, especially favouring those of the chalk, the oolite, and the mountain limestone, but always avoiding the heavy clays and the valley bottoms. A visit to a typical region of upland farms, like Wales, will show the thing to perfection. There the mountain-sides remain untilled as they have always done; but the uplands are fully occupied by small farms, each even in these days with one or two arable fields, right up to the 1,000 ft. contour and sometimes even beyond. But it is not necessary to go so far afield. A few short journeys from Oxford are all that are necessary. The Cotswolds (oolite) and the Berkshire Downs (chalk) have been regions of human settlement from the Neolithic Age onwards. Still, after more than a generation of acute agricultural depression, perfectly good arable land yielding satisfactory crops can be found nearly up to the summits of both.

Mr Collingwood appears to have been misled into thinking that a light soil is necessarily infertile. This impression is confirmed by the following sentence. 'Consequently the profits of agriculture in prehistoric Britain were relatively low, and the necessary outlay of labour relatively high'. Neither the premiss nor the conclusion is justified by the facts unless the word 'relative' is given a very extended

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meaning. Has Mr Collingwood forgotten that the most famous revolution in English agricultural methods—the Norfolk rotation initiated by Thomas Coke of Holkham—was evolved upon the light sandy soils of northwest Norfolk, and thence adopted for light soils in other parts of the country? The system of cultivation for a light soil is quite different from that necessary for a heavy clay. The clays demand constant and efficient drainage, while the light soils need little or none. The clays may require three or four deep ploughings in the year, while the light soils need but one or two shallower ones. It is on the clays and not on the light soils that the necessary outlay of labour is high. The ultimate yield per acre on the clays may be greater, but the yields per man employed may be less. It is because labour is dear and wheat is cheap that the heavy clays have been slipping back to pasture for the last fifty years, while the lighter soils have retained a higher proportion of arable cultivation.

Mr Collingwood's estimate of the population of Roman Britain is made up as follows :—

(a) London	25,000
(b) Large towns	100,000
(c) Small towns	75,000
(d) Villages	150,000
(e) Villas	50,000
(f) Army and dependants	100,000
	<hr/>
	500,000

This at once raises the question how this population was supported, and it must be considered in a little detail. (a) The point that obtrudes itself at once is the small proportion allowed to be directly dependant upon agriculture. The villas and the villages account for 200,000 between them, only two-fifths of the whole. Possibly some of the townsmen and some of the army dependants may have indulged in agricultural operations subsidiary to their main occupations. If another 50,000 were allowed for them we still have a position in which the agricultural population was feeding double its own number. It is evident, therefore, at the outset that Mr Collingwood's 'primitive' agriculture was something far beyond a mere subsistence agriculture.

(b) The population of London is put 'as a rough guess' at 25,000, or 5 per cent. of the whole. It was, therefore, quite a large town as towns went in the days before the factory system. How then

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did it get its living? Obviously as a trading centre with perhaps some manufacturing besides. Now a town of this size needs a considerable trade to support it. The sites of Roman Britain, even down to the villages, yield evidence in plenty of the import of continental products, but these imports must have been paid for by corresponding exports. There was certainly some Roman mining (though Mr Collingwood does not include any miners in his population estimate), but hardly sufficient, after supplying the needs of the country itself, to account for a trading town of this magnitude. Nor would British oysters, however famous and delicious, fill the gap. There remains nothing but the surplus products, direct and indirect, of British agriculture. We know from a reference in the eastern edict of Diocletian that British cloth was known as far east as Constantinople, which seems to show that wool was even then a 'staple' product of the island. This raises a point to which Mr Collingwood does not appear to give any weight. The Celtic speaking people in Britain were great pastoralists. Before the coming of the Romans the tribal wars and raids must have kept down the stock of cattle, sheep, goats and swine; but after the imposition of the Roman peace there would be no reason why the stock should not increase up to the limit that the available pasturage could support. A large increase in the live stock would mean a substantial increase in the means of subsistence apart from the cultivation of the arable land. The change of conditions along the English-Scottish march before and after the union of the crowns affords a good historical parallel.

(c) Then there are the smaller towns with a total estimated population of 175,000, making with London a total equal to that of the entire agricultural population. Mr Collingwood argues that the building of the towns was primarily a political move; that there is no evidence that any of them developed considerable industries; that the capital spent in creating them was completely wasted; that they impoverished the countryside; and that they finally crumbled away. The argument proves too much. Mr Collingwood admits that 'they were still doing their best to fulfil their political functions even in the fifth century'. If these civitates were subsisting long after the 'withdrawal of the legions', they can hardly have been so alien to the population as the theory requires.

It is patent on Mr Collingwood's own showing that they existed for the whole period of the Roman occupation and beyond it (300 to 400 years), subsisting apparently all the time upon the progressive

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impoverishment of the countryside! Those towns and that countryside must have been like a famous monarch and taken an unconscionable time in dying. The theory *may* be sufficient to account for their disappearance: it is palpably insufficient to account for their maintenance. There is no mystery at all about the economic basis of a country market town. It makes or obtains the things that the countryside wants, and it markets the products of the countryside in exchange, making a profit on both sides of the transactions. It draws its wealth from the surplus produced in the countryside. If no such surplus exists it crumbles away, not after the lapse of 300 to 400 years, but forthwith.

(d) Further we have the army and its dependants—100,000 people. It is quite probable that the taxation necessary to maintain the army on the British frontiers was not all raised in Britain itself; but it is equally probable that the whole of the food that it consumed was grown in the country. There is no suggestion anywhere of any import of food into Britain.

The matter does not rest here, nor does it rest entirely upon a balance of probabilities. We have some evidence, small but very definite, upon the capacity of British agriculture round about the year 360 A.D.—just a few years before the terrific disaster of 367.

In considering this evidence we must recollect Mr Collingwood's theory. It is in short that the Romans effected no improvement in the prehistoric agricultural practices of Britain; that they imposed the towns as parasitic structures upon an unwilling countryside; and that these towns steadily impoverished the surrounding country. We are now at 360 A.D., more than 300 years since the landing of Aulus Plautius. It is evident that upon the theory, the impoverishment must have gone very far indeed by that time; it is difficult to imagine how either towns or countryside could still have existed in any tolerable manner.

Now for the evidence:

(a) 'The general laudation of the fertility and wealth of the island in which the Panegyrist indulges is corroborated by such practical evidence as the fact that Constantius collected masons and artizans for the rebuilding of the Gallic Autun in Britain, "quibus illae provinciae redundabant"'.² The quotation is from Eumenius.³ A

² Oman, *England before the Norman Conquest*, p. 153.

³ Quoted by Haverfield, *Roman Occupation*, p. 220.

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panegyrist is not to be taken too literally ; on the other hand, there is no necessity to assume that he lied uselessly. Building is only possible where there is surplus wealth, and the surplus wealth of Britain that paid for and gave scope to the abundance of skilled artizans can only have come from mining and agriculture and principally from agriculture.

(b) Zosimus, Julian himself, and Ammianus Marcellinus all record the export of great stores of corn from Britain for the use of the devastated provinces of the Rhineland in 358 and again in 360. It seems to have been no unusual thing. It was apparently so dependable that Julian reorganized the trade, augmented the carrying fleet and arranged inland water transport on the other side.

If these are the results produced by primitive agriculture, what may we expect from high farming ?

To sum up this portion of the argument. Mr Collingwood's theory requires us to believe that a farming community of 200,000 (or 250,000 at the most) practising a primitive agriculture upon miserable soils was able

- (a) to feed and maintain itself ;
- (b) to support a great trading mart of 25,000 persons ;
- (c) to support and feed country town populations of 175,000 ;
- (d) to provide food for an army and dependants of 100,000 ;
- (e) to pay for large imports and sustain an abundance of skilled artizans ;
- (f) to provide an exportable surplus of grain.

It is needless to say that medieval England, practising a subsistence agriculture, could never have produced anything like such a result—it is highly doubtful if it could have been accomplished before the industrial and agricultural revolution.

It appears to me, to speak plainly, that the theory is not consistent with the figures or the facts adduced in support of it, and is quite inconsistent with the other evidence available.

It is possible that the proposition that the Romans did nothing to improve the agricultural practices of Britain may be supported, but only upon the ground that it was so good already that the Romans could not improve it. It may be argued that the Britons had nothing to learn from the Romans about the methods of cultivation suitable to our climate. Caesar may be accepted as a sober and exact observer with intimate knowledge of Italy and Gaul. When he writes, ' the

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population is immense; homesteads, closely resembling those of the Gauls, are met with at every turn; and cattle are very numerous',⁴ the statement may be taken at its face value. Furthermore the facts support it. In the first expedition his army, numbering about 12,000, supported itself for more than a fortnight upon the corn reaped in the immediate neighbourhood of the landing-place. In the second expedition the Trinovantes delivered a requisition of sufficient corn for four legions and 1,700 cavalry with the auxiliaries in a few days.⁵ It is no unreasonable assumption that, when the Roman peace had been imposed for a lengthy period upon a people capable unaided of producing results like this, that British agriculture may have yielded all that the records require.

This Romano-British farming is contrasted with the methods of the Saxons who 'were willing to settle in places where capital had to be sunk in clearing woodland', who sank 'capital in the cultivation of better soils', and 'tapped new and richer sources of wealth'. I will not comment upon this curiosity of economics further than to inquire where the Anglo-Saxons obtained this alleged store of capital. Capital is nominally the product of peaceful industry; their's was a period of continuous warfare. Capital in the days before instruments of credit existed could only have been transported in material forms. Coming over in small vessels fully equipped for war, where was the Saxons' capital stored and of what did it consist?

In the epilogue we are treated to this interesting piece of reconstructed history.

'And now come Saxons, ready to settle and lend a hand at keeping off Picts and Scots. . . These settlers are not enemies; they are officially made welcome and accepted as allies. . . Hengist and Horsa are not the leaders of a conquering host; they come with a handful of men in "three keels", are welcomed, are given land, and settle down as friends and neighbours'.⁶

⁴ *Hominum est infinita multitudo creberrimaeque aedificia fere Gallicis consimilia, pecorum magnus numerus.* B.G. II, 12. The translation is by Dr T. Rice Holmes. Caesar, of course, is speaking only of the portion of southeast Britain that came under his direct observation.

⁵ It is interesting to remember that a corn-symbol appears on the reverse of the coins of Cunobelin.

⁶ Mr Collingwood now apparently accepts Hengist and Horsa as historical personages; a few years ago he thought that their names 'put a strain on our credulity'. *Roman Britain*, p. 100.

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The last sentence irresistibly reminds one of another legendary invitation: that to Fitzhamon and his twelve knights in Glamorgan in the eleventh century. The result was apparently as satisfactory to the inviters in one case as in the other. Gildas at least had no doubt of his opinion about inviters and invited.

The Saxons seem to have changed their character in a remarkably short period of time. They took part, as Mr Collingwood has informed us two pages before, in the confederation of barbaric tribes that 'destroyed the military forces and ravaged the length and breadth of the country' in 367. The first exploit of the Saxons on that occasion was to overwhelm the coastal defences, and to defeat and slay Nectarides the Count of the Saxon shore. Then they proceeded, according to Mr Collingwood, to burn and loot the Roman villas wherever they could and to cut the throats of the owners and their families. The Romano-Britons may be pardoned for thinking that as a demonstration of friendship and alliance this was rather overdoing it.

On the other hand, there is no doubt that the Saxons were given an 'official' welcome; but some among them may from time to time have been faintly sceptical about its peaceful character. It consisted as a first line of the British fleet, presumably maintained as a demonstration of friendship to any doubting Saxons who might otherwise have been chary of landing. Behind the fleet was the long line of forts under the command of the Count of the Saxon shore, and to put the official character of the welcome beyond any doubt the second Augustan Legion (or part of it) was moved from Caerleon to Richborough. For all that a Saxon chieftain who encountered the second legion outside the walls of Richborough might have been more impressed by the official aspect of his welcome than its friendliness. This organization of welcome was maintained from the end of the third century to the close of the Roman occupation.

Then we know what Gildas thought about the Anglo-Saxons. He exhausts his vocabulary of invective in an attempt to describe the ferocity, cruelty, and bestiality of these barbarian and pagan savages. Mr Collingwood dismisses Gildas as belonging to a much later period. Apparently the theory requires that the Anglo-Saxons passed through a cycle of milk and nectar sandwiched between two other periods of utter ferocity. The period of meekness is conveniently placed at a time when we are without contemporary records, which greatly facilitates conjecture. I have dealt at some little length, and I hope

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faithfully, on another occasion⁷ with this Belloc-like hypothesis, and therefore will not pursue the point further. But it is surprising to find Mr Collingwood in such company.

Finally it will be fair for me to provide a target for a counter-attack. I will put it as a series of propositions.

(a) That a fundamental distinction in English history is one between the upland peoples who despised and feared the valleys, and the valley peoples who disliked the uplands.

(b) That the prehistoric people were uplanders, except perhaps the folk of the lake villages.⁸

(c) That Cæsar found an upland Celtic speaking people in southeast England practising agriculture and practising it well.

(d) That the Romans did not attempt to interfere with this upland tillage; first, because they did not desire to do so, and secondly, because it is impossible to *make* an upland people conquer the valleys. When the process has taken place, it has been most protracted.

(e) That it is incredible that the intense Romanization of the civil part of the province in every department of life (*vide* Haverfield) had no effect upon agriculture, which was the foundation of all.

(f) That on the contrary it is reasonable to assume that the Romano-Britons, with their other borrowings, learned and adapted all that was suitable of the best agricultural practice of the times.

(g) That they learned their lessons so well that by the third and fourth centuries the province was in a flourishing condition; that down to 367 A.D. it maintained a great trading centre, supported an extensive town life, fed a large garrison, and had a considerable surplus available for export.

(h) That this civilization suffered a deadly blow in 367 and gradually crumbled into decay.

⁷ 'Britain: Rome: England'. *Edinburgh Review*, October 1925.

⁸ As a general statement I believe this to be correct, but there may quite well be local exceptions. Fleure and Whitehouse have made us familiar with the 'valley-ward movement' of upland peoples and this very slow movement may have been accelerated in places where the soils are propitious. Sinodun Hill on the Berkshire bank of the Thames opposite Dorchester appears to be a typical hill-top camp. But it stands on a valley-ward extension of the chalk, a sort of prehistoric Windsor Castle.

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(i) That the country then sustained a long series of invasions by valley peoples, accustomed to live in forest clearings, from across the North Sea. These people settled in the valleys and lowlands and nowhere else.

(j) That these invaders, during the whole of the pagan period at least, utterly destroyed the upland tillage that they found, and slaughtered or expelled the tillers.

(k) That the uprooting was so complete that the upland fields became pastures, the villages wastes, and their names as though they had never been.

(l) That this process was carried out (except for a few scattered islands of uplanders) roughly up to the limits of the civil district of the Roman province, and in some parts beyond it.*

If I do not claim, like Mr Collingwood, that my theory 'fits the known facts like a glove', I do with due deference submit that my glove fits them a great deal better than his.

* The clearing of the country was far less thorough in the later stages of the conquest than in the earlier. Freeman pointed out, on the evidence available in his day, that the character of the conquest of Somerset and Dorset was different to that of Kent and Sussex. Wiltshire and Hampshire provide evidence of the survival of some Celtic population. The survey of the English Place-name Society is throwing welcome further light on the problem.

Mr Collingwood and Mr Randall: a note

by R. E. M. WHEELER

IN this question of the population of Roman Britain, my friends Mr Collingwood and Mr Randall have discovered differences of opinion, and a persuasive Editor has now imperilled my friendship with both by asking me to join issue. This I have resolutely refused to do.

* * * * *

But, after all, one guess is as bad as another. Mr Collingwood guesses half a million. Mr Randall guesses . . . but on re-reading Mr Randall I find that he doesn't guess at all. He passes lightly from persuasion to persuasion and ends with *x*. Indeed, he loses interest in the statistical problem and concerns himself mainly with the Higher Agriculture or, as he would phrase it, the Agriculture of the Uplands. He bravely ends, however, with Twelve Points which he gracefully provides as 'a target for counter-attack'.

The beauty of it is that Mr Collingwood (although I have not asked him) would probably be amongst the first to agree wholeheartedly with almost all these Points. Only in the first three or four of them can I see any *casus belli*. Mr Randall declares that 'a fundamental distinction in English history is one between the upland-peoples who despised and feared the valleys, and the valley-peoples who disliked the uplands', and adds that 'the prehistoric people were uplanders, except perhaps the folk of the lake-villages'. This statement we have all of us heard somewhere before. To say that it is wrong would be to verge upon hyperbole but that, in its normal context, it contains a somewhat treacherous *suggestio falsi* would be the solemn truth. The statement is one which has been popularized by an able and eloquent school of geographers, working in a mountain-environment. But as a generalization it is calculated to mislead the young. To describe our prehistoric forbears as 'hill-dwellers' is to forget that the gravel banks

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of our English rivers team with vestiges of prehistoric habitation. Pottery and other relics show that the banks of the Thames along the Boat-race course, to say nothing of the Abingdon reaches, carried an extensive population from the Stone Age onwards. In the river-system of the Wash, it is scarcely possible to open a gravel-pit without finding 'Peterborough' pottery or beakers or Early-Iron-Age sherds. Ask Mr Wyman Abbott of Peterborough. And look at Dr Cyril Fox's maps of the Cambridge region. Look again at the gravel pits along the Bedfordshire Ouse. Why, our prehistoric valley-population was (relatively) immense! It did not *lump* as on the open downs; it was strung out along the gravel strips, and therefore does not bulk so largely on a distribution-map. But it was there.

The essential truth of the matter is already anticipated by Mr Collingwood himself. The primary factor in our prehistoric distribution was not upland *versus* valley. It was open ground *versus* closed ground, down or heath *versus* forest. This is now a trite saying, but evidently needs re-emphasis. In a mountainous country (such as that which forms Mr Randall's daily horizon) the heights are liable to be open and the valleys closed or forested. Progress in that milieu towards the more sheltered and fertile, if less tractable, lands is therefore valley-ward. In a low-lying country, on the other hand, the determining element is not altitude but subsoil, and the equivalent movement is therefore a lateral one, from chalk or gravel towards clay. The essential change which the distribution of our population underwent between A.D. 1 and 1000 was that of a *partial movement into forest-land*; the so-called valley-ward drift being merely a local and special manifestation of this movement.

With this not unimportant modification, Mr Randall's points seem to be unassailable. I doubt, however, whether they really convey the main gist of Mr Randall's thesis, which is, that Mr Collingwood's estimated population of half-a-million is too small to have supported the economic burden which we are compelled to put upon it. Here Mr Randall, I think, scores; we must certainly add to that half million. Let us very briefly glance once more at the principal factors, taking Mr Collingwood's estimate as a provisional working basis.

We presume as an axiom that the whole of the population of Roman Britain derived its food from the home-market; foreign imports such as wine and oil must have been relatively inconsiderable. If, therefore, we are to appreciate the economic structure of this scheme, it is necessary at the outset to distinguish if possible between the food-producing and the non-food-producing elements in the population. We are at once

MR COLLINGWOOD AND MR RANDALL

landed, of course, in the realms of conjecture, but we may distinguish certain probabilities which may be tabulated thus :—

1. The standing-army of 40,000 men, or, with their dependents, upwards of 100,000 souls, may under favourable conditions have spent a part of their spare time upon the cultivation of allotments, and so have assisted directly in their own maintenance. We have however no good evidence that the Roman imperial soldier, even in times of comparative peace, was able to indulge extensively in agriculture. I have not forgotten the terraced hill-side at Housesteads on the Wall; but we have in any case to allow for a fairly considerable civilian population outside the larger permanent forts, and it is only reasonable to suppose that the building, upkeeping and guarding of the frontier-fortifications and the patrolling of the adjacent countryside remained a primary and exacting charge upon a soldier's life. It would at least be on the safe side to assume that 60,000 or 70,000 of the 100,000 were non-productive dead-weight so far as food-supply was concerned.

2. Then there were the mines. It is impossible to calculate any near figure for the number of miners, say, in the 2nd century of Roman Britain. The number must nevertheless have been considerable. There were mines on Mendip, in the Forest of Dean, in Carmarthenshire, Anglesey, Flintshire and elsewhere—copper, iron, lead and silver, gold, perhaps tin; and 12,000 would not, I think, be an unreasonable figure to guess for the actual employees, or 30,000 for the mining population all told.

3. Then there is that very considerable population of merchants and middlemen whose presence is witnessed by hundreds of tons of Roman continental pottery, etc., up and down the land and indeed by the whole rapid process of Romanization. I doubt whether 40,000 financiers, importers, transporters, shop-keepers, travellers and so forth would be too large a share to allot for this section of the population of the island; say 90,000 or 100,000 including families and allowing for temporary residents from abroad.

4. Then we have allowed nothing for the Roman civil service. A total of 5,000 (families included) would be a reasonable minimum for this.

Other items might easily be added to the above. For example, a not inappreciable proportion of the industrial population—potters,

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metal-workers, builders and the like—must have been practically non-food-producing. I say nothing, moreover, of the increase in partially unproductive slave-labour under the Roman regime. All these for our present purpose I will ignore in order to avoid any possible risk of over-estimating the non-food-producing section of the population.

We have thus already allowed for something over 200,000 non-food-producers in Roman Britain. To these must be added a proportion of the remaining (hypothetical) 300,000 to represent the young or infirm who were unable to work upon the land. Twenty per cent. would probably be a conservative estimate. That is to say, a further 60,000 would be food-consuming without also being food-producing.

On the total, we therefore have the following result. Upwards (probably considerably upwards) of a quarter of a million out of an assumed population of half a million souls would be consuming food and not producing it. In other words, each Romano-British farmer or farm-hand would have to produce, throughout the year, enough actual food to keep more than two people in a good deal more than bread and butter. This figure is somewhat summarily reached also by Mr Randall, and I cannot help feeling that both of us are really under-doing the case, and that the number of non-food-producers must have been considerably greater.

But the matter does not end there. A generation or more before the conquest, if we may believe Strabo, Britain was already exporting corn. In the 4th century, there are the equally well-known contemporary accounts of the exportation of corn to the Rhineland. These explicit references to our early trade in agricultural products can only give a hint, however, of the real truth. The enormous import-trade of Roman Britain, partly from the Mediterranean but more especially from Gaul and Germany, is apparent on every Romano-British site. To a limited extent these imports may have been paid for in metal or in slaves or (still more rarely) in the products of British industries. But, as in the later era of the Sagas, our exports must have been primarily corn and woollen cloth. This point requires even more emphasis than Mr Randall gives it. The gallant 250,000 (or less) Romano-British farm-hands must, in other words, be supposed not only to have fed continuously upwards of two individuals each, but, at the same time, to have provided much of the capital which maintained a very active Continental trade.

The inference is, I think, inevitable. On purely economic grounds,

MR COLLINGWOOD AND MR RANDALL

it must be supposed that Mr Collingwood has considerably underestimated the agricultural population of Britain. He has also, I think, rather neglected those sections of the population which lived in the less fertile outskirts of the province with hardly any give-and-take as between themselves and their more prosperous neighbours. Take a modern example. The primitive population of the Isle of Lewis can have altered very little, either numerically or economically, since prehistoric times (see the Royal Historical Monuments Commission's report on *The Outer Hebrides*, etc.); it still supports itself on a bare hand-to-mouth basis. Nevertheless, as I am informed, *it sent no less than 6,000 men to the Great War*. In Roman times we have sufficient evidence to show that the hills of Northumbria and Wales likewise carried a considerable self-supporting population which would show little or no reaction upon the economics of the Province as a whole (save possibly as a recruiting area for the mines) and is, therefore, ignored in our calculations above. The extent of this fringe-population is, of course, incalculable; but it is worth remembering that there is hardly an excavated hill-fort in Wales which has not produced evidence of native occupation in the Roman period, and that hut-villages from Pembrokeshire to Carnarvonshire have told the same tale.

In short, the population of Roman Britain was not half a million but a million and a half. When all is said and done, the difference is but trivial. Mr Randall and I, whether we agree or not with Mr Collingwood in detail, are in fact following in his footsteps. If in regard to his solution we must say *potest videri ostendisse posteris, non tradidisse*, we implicitly number him at the same time amongst the greater pioneers.

Notes and News

'THE PALACE OF MINOS'

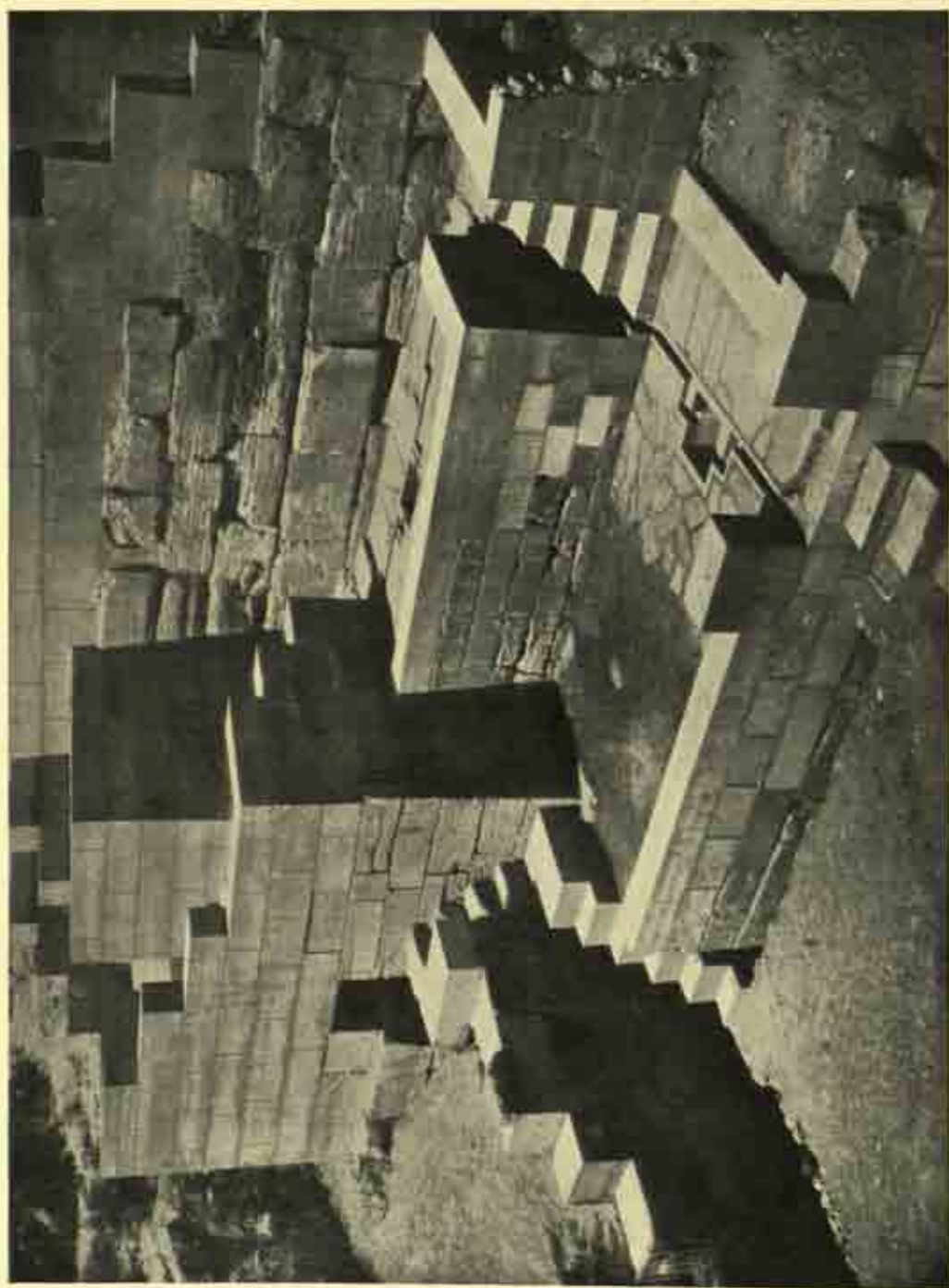
Sir ARTHUR EVANS writes :—

The friendly notice of my second volume of *The Palace of Minos* by Mr Wace in your September number shows that some explanation and reassurance as to one or two points is fairly owing to those interested in the work at Knossos. Let me say then as to the process of re-constitution and restoration, there necessitated to such a considerable extent, that all the recent work has been executed in ferro-concrete and cement, which is painted a conventional brown in the case of the restored wood-work and the cement filling in of the hollows left by the carbonized beams and posts. Even non-archaeologists can therefore detect what is new in the structures, while the replicas of the frescoes—so admirably restored in position by M. Gilliéon, fils—can be seen in their original state in the Candia Museum and ought not therefore to mislead visitors.

In the photographic view given of the East Bastion (plate 1), which at the beginning of this year threatened general collapse, and now restored by Mr Piet de Jong under my direction, the restorations in concrete can be fairly distinguished from the original blocks.

With regard to the record of stratification the absence of any section, in the case cited of the south porch, (where however such shallow materials as do exist were referred to in the text), and indeed throughout the west region of the Palace generally, is due to the fact that it was directly built on the razed surface of the hill-top, presenting a uniform Neolithic level. The successive floors of the building itself, moreover, largely rest on the same level, with very little remains of the intervening periods between them and this Neolithic stratum, which it was not the present object to explore. I am happy to say however that in the more northern region much better stratigraphical evidence has occurred in places, notably in the northern entrance-passage and, to an unexpected extent, under the 'Theatral Area', diagrammatic records of which will appear in my forthcoming volume. With regard to 'Wager system' of excavation it is well to know that it was only carried

PLATE 1



PALACE AT KNOSSOS
VIEW OF EAST BASTION AS RESTORED, SHOWING STAIRCASES AND RUNNELS DESCENDING IN PARABOLIC CURVES

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out in places where great masses of material had to be removed above the Minoan level. When that was reached this method of rapid clearance at once ceased. Sections of the whole 'Tell' of the Palace will appear in the concluding volume.

Your readers may be glad to know that my third volume, which deals with the remains of the 'New Era' in the northern and eastern regions of the Palace, is already far advanced towards completion and will, I hope, appear shortly. It will be found to contain much new material illustrating the highest productions of Minoan Art and the life in the great Palace halls, set forth in many cases by colour plates. On the religious side the records of the Minoan Mother Goddess with the Divine Child will be found to be of compelling interest.

There will then only remain for volume IV the sections describing the remains of the latest stage of the Palace history, including the 'Room and of the Throne', and a summary survey of the clay documents of the linear class B, which belong to this stage. In a more complete form these will, I hope, shortly appear in a continuation of my 'Scripta Minoa', for the publication of which I hope to have the assistance of the new Oriental Institute of Chicago.

It has also been necessary to reserve for this concluding volume the general index, the laborious compilation of which has been kindly undertaken by my sister Miss Joan Evans. I am very conscious of the inconvenience caused to readers by this long postponement, but no really satisfactory index could have been put together without reference to the full materials. A premature digest in the present case would have been quite misleading, owing to the constant emergence of new facts. The excavations and researches, indeed, of the past year, have in some respects revolutionized our knowledge of the Eastern Palace region. At the same time every effort has been made—to an extent that I cannot recall in any other book—to facilitate reference by elaborate tables of contents, and by the arrangement of sections as far as possible in a logical order, with very full résumés; as well as by sub-sections, marginal indications of the subjects and descriptions at the head of every page.

THE SILTING OF DITCHES IN CHALK

Excavators will welcome Dr CECIL CURWEN's contribution (below) to the technique of excavation. It confirms and amplifies General Pitt Rivers' experiment at Wor Barrow (*Excavations in Cranborne Chase*, 1898, IV, 24; see *Man and his Past*, 1921, p. 212). There

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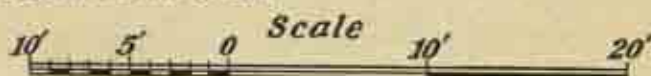
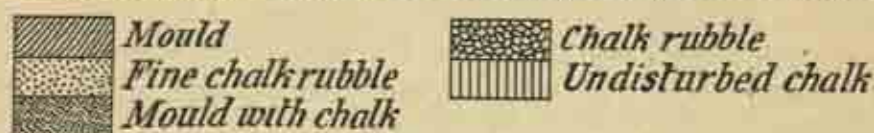
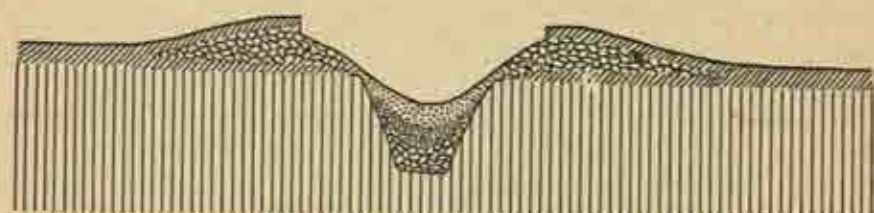
moreover the lapse of time was only 4 years instead of 13, as here. For those of our readers who are not familiar with the methods of archaeological research, it may be explained (1) that the prime object of excavation is to obtain evidence for dating a site; (2) that potsherds (and other objects) constitute such evidence; (3) that the majority of prehistoric sites in northwest Europe have *ditches*; (4) that these ditches, and therefore the site, can be dated when pottery (or other objects) are found in them in some specific relation to the silting. Dr Curwen writes:—

On Thundersbarrow Hill near Shoreham (Sussex) is a series of military trenches that were dug during the years 1915–16. As these have never been filled in it is possible to study the process of natural silting that has taken place in 13 years. The accompanying figure (p. 99) shows a carefully measured section through one of these trenches, taken after clearing out a portion of the silting down to the original trench bottom. It will be seen that whereas the trench was originally 5 feet deep below the turf, with an additional depth of $2\frac{1}{2}$ feet provided by the chalk parapet thrown up on each side, the chalk has silted in to a depth of $3\frac{1}{2}$ feet in 13 years. The face of this filling as revealed in the section shows that it consists of three principal layers, which from below upwards are as follows:—(1) coarse chalk rubble; (2) mould with chalk; (3) fine chalk rubble.

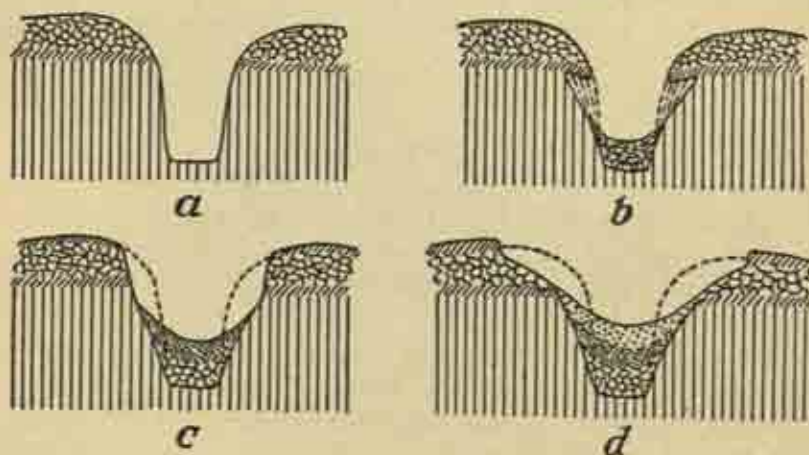
The four diagrams, *a*, *b*, *c*, and *d*, illustrate the stages of this silting as I have from time to time observed them, during the last few years. They are not strictly drawn to scale inasmuch as the original width of the trench when first dug was not measured, nor the original height of the parapet ascertained, but I feel sure they may be taken as approximately correct.

In diagram *a* the trench is shown more or less as it was when first dug. In *b* the walls of the trench below the turf-line are crumbling, especially under the influence of frost. The bottom of the trench gradually becomes filled with a rather coarse chalk rubble, which, as it collects, protects more and more of the lower part of the walls, while the upper part goes on weathering. The result is that the trench tends to become trumpet-shaped in section, that is, the walls slope more steeply in their lower than in their upper parts. This disintegration goes on *under* the old turf-line, which, being matted with grass and roots, does not give way until it is very much undermined, but sags downwards under the weight of the chalk rubble forming the parapet. Some of this latter also trickles down into the trench, but it is some few years before the turf actually breaks away, bringing down part of the parapet with it.

*Section through old military trench, Thundersbarrow Hill.
shewing result of 13 years silting.*



*Diagrams illustrating the stages observed
in the process of silting.*



R.G. 1929

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This then forms the layer of mould with chalk in diagram *c*. The final stage is the much more gradual disintegration of the inner slopes of the parapet—more gradual because less steep—and this results in the layer of fine chalk rubble (diagram *d*). This is the present stage, and it may be expected to continue at a steadily decreasing rate as the slope becomes less and less steep, until finally the 'angle of rest' is attained and the weathering is so slight as to allow grass to grow on it and turf to form. After that no further weathering is possible.

The outer slopes of the parapets have long ago reached that stage, because they have always been much less steep; consequently they are now covered with a fairly thick layer of turf and grass which terminates abruptly on the crest above the inner slope.

With the passage of centuries turf-mould has a way of shrinking almost to vanishing point; hence the rarity with which old turf lines under ancient ramparts are to be found. Thus it is not surprising that deep layers of turf-mould in the filling of the ditch are also seldom found.

The morals of all this are chiefly four:—(1) the walls of the original ditches may be expected to have been much steeper than they are found to be on excavation; (2) ramparts are denuded by weathering at the expense of their width rather than of their height, unless the original height was artificially enhanced by revetments of chalk blocks or timber; (3) the degree of coarseness or fineness of chalk silting is in proportion to the rapidity with which it has collected; (4) by far the greater part of the filling of a ditch collects within a very few years of its having been dug, unless the ditch has been systematically kept clear during the period of its use.

A BRONZE STATUE OF SEPTIMIUS SEVERUS

Mr W. A. STEWART, Technical Artist of the Harvard Boston Expedition (Pyramids, Cairo) contributes the following note:—

About a year ago [see *ANTIQUITY* (1928), II, 220, 355], a peasant ploughing a piece of rough land near Kythraea in Cyprus, found a large bronze statue broken, but in fairly good condition. With the cupidity of his kind he proceeded to break it still more in the hope of finding gold inside it; but, being disappointed and the bronze being too big to hide, he finally gave it up to the authorities at Nicosia.

The head was recognized to be that of the Emperor Septimius

PLATE II



HEAD OF BRONZE STATUE OF SEPTIMIUS SEVERUS AFTER RESTORATION
Ph. W. A. Stewart

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Severus, and as the figure is nude, the statue probably represents that Emperor as one of the gods, and may have been a royal gift to a local temple.

The pieces, as found, had been stored in the Museum until I was asked in August to undertake the cleaning and restoration. The head was broken off at the neck, and a large irregular hole in the scalp extended in two cracks down the sides of the head behind the ears. The torso was split in front and the left shoulder-blade was driven inwards badly. Both arms were broken off at the original joints near the shoulders, and the arms themselves were broken at elbow and wrist and the hands were smashed off. The body was broken off on the original joint of the waist line; the legs broken at the hips, knees and ankles and one foot was missing. The left thigh was split and badly broken in and a small 'Jack' had to be used before the metal could be raised into position and the break closed up and soldered from inside.

The metal, however, was in fairly good condition; and after cleaning the most corroded parts with caustic soda and Rochelle salt, a finely polished surface of beautiful dark green patina was revealed. A great deal of incrustated clay and lime had to be scraped away with a blunt knife before the detail of the hair and beard was clear. The right arm was so mutilated that it could not be joined to the body without modelling the missing parts, and the time at my disposal was not enough to allow of my doing this, or of mounting more of the figure than that shown in the photograph (plate II). The worst damage to the legs was repaired and the joints found and marked, so there is every possibility that the complete figure may eventually be mounted up.

The bronze was in such sound condition that it could be scraped bright on the inside, and the joints fastened with solder. The hole in the scalp was filled in with lead and modelled with soldering irons to match the rest of the hair.

Many holes and a large part of the back were filled in with plastic wood and coloured to match the patina. After wax-polishing, it was almost impossible to distinguish the plastic wood from the bronze. The statue has a lively movement and poise, and the workmanship is as fine as any Roman bronze yet discovered. It had originally been cast in parts and fixed together on lead collars with small oblong bronze plates hammered into the line of the joints. The sunk spaces of these plates can be seen in the large photograph of the head, along the line of joint between the neck and shoulders.

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DISCOVERIES AT BIRDOSWALD, ON HADRIAN'S WALL

The season of 1929 has produced results of the first importance on the line of Hadrian's Wall. It has long been felt that the Fort of Birdoswald was the place where, more than at any other, the solution of most of the problems was likely to be found; and, for several years past, the work that has been done elsewhere has been to a considerable extent designed as a preparation for a direct attack on that fort. During the past summer the first phase of this attack was launched. The results were even more valuable than one had hoped. The intention of this year's campaign was to find confirmation or amendment for the theory, generally received since about 1912, that the history of the Wall comprises three main periods:—(1) its foundation in the reign of Hadrian, and occupation until the disaster of 181; (2) a second period, beginning with repairs following on this disaster and extending to about 270; (3) a third period, beginning after 270 and lasting until about the end of the fourth century. A fourth period, supposed to begin after the disaster of 367, lacked archaeological evidence.

The sequence of these three periods rested, in the main, on the evidence of the coins found at the Poltross Burn milecastle in 1910; and although it has been found to work fairly well in practice, it gave rise to a number of difficult questions, and stood in great need of a wider and firmer basis. This was the idea which prompted the Durham University Excavation Committee to select a small part of Birdoswald fort and subject it to intensive study. The part selected was a single building, which lay exactly over the filled-in ditch of the Turf Wall, and was therefore sealed on its underside, so as to contain no occupation-debris that could possibly have been deposited before the Turf Wall was superseded by the Stone Wall. This building was completely cleared out down to the peat filling of the ditch.

The most important finds—indeed, the most important made on the Wall for many years—were two inscriptions. One recorded the restoration of some large building under Severus, about the years 204–208. The other tells us that various integral parts of the fort were re-built under Diocletian and his colleagues between 296 and 305. These enable us to fix the chronology of the phases in the history of the Wall in a slightly different and far more secure manner. The second period must now be made to begin with Severus; a satisfactory result, because it tallies with the literary records of that Emperor's reign, and does away with the necessity, felt by some scholars in recent years, to suppose that the tradition of his activity on the Wall was unfounded. But this

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involves a new date for the end of the first period. We can no longer be content to ascribe the great destruction to the reign of Commodus. We seem almost compelled to connect it with the occasion, during the usurpation of Clodius Albinus, when the Maeatae broke into the now undefended province and had ultimately to be bought off by the legate of Severus. This new reading of the evidence has yet to be confirmed by a thorough reconsideration of all the facts in our possession; but it is now perhaps not too early to say that it seems to promise a solution of many old difficulties.

Hardly less important is the fact that we can now definitely ascribe the beginning of the third period to Diocletian and his colleagues, in particular to Constantius Chlorus. The end of the second period seems therefore to demand a date some years later than 270.

Both inscriptions were found used as paving-stones in a floor underneath which the latest object found was a coin of Valentinian I. This floor, therefore, was laid when the fort was repaired after the great war of 368. The occupation-debris on the floor is thus dated to the last, or, as we may call it, the Theodosian, period of the Wall's history. Beneath it there emerged three sealed levels containing rich deposits of pottery which, when properly analysed and published in connexion with the epigraphic evidence for the date of the deposits, will tell us more than we have hitherto known about the dating of pottery in this part of Britain, and react on the interpretation of past discoveries and the course of future research. [R. G. COLLINGWOOD].

The text of the inscriptions, so far as it is certainly legible, is as follows. No attempt to fill gaps or indicate ligatures is made.

1. Found face upwards, much worn, used as Theodosian floor-slab.

IMPP · CAESS · L ·
 SEPT · SEVERO PIO
 PERT · ET · M · AVR ANTO
 NINO AVGG · ///////////////////////////////////
 ///////////////////////////////////R/
 ////////////////////////////////// · REST · COH · I · AEL
 DAC · ET · ///////////////////////////////////SVB
 ALFENO · SENECONI · COS
 PER · AVREL · IVLIANVM · TR

Date, 204-8. Geta's name and title are erased; the name of the building restored is uncertain; so is that of the second corps concerned

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in the work : Alfenus Senecio, Governor of Britain, 204-8, was active also at Risingham, Bowes, Greta Bridge, and Bainbridge. Aurelius Iulianus buried an infant child at Birdoswald. The carver corrected AVL to AVREL. Expanded reading :—Imperatoribus Caesaribus Lucio Septimio Severo Pio Pertinaci et Marco Aurelio Antonino Augustis et Publio Septimio Getae, Nobilissimo Caesari, !!!!! restituerunt cohors prima Aelia Dacorum et !!!!!!! sub Alfeno Senecioni Consulari, per Aurelium Iulianum, Tribunum.

2. Found (plate III) side by side with (1), with face (much weathered) turned down.

D·D·N·N·DIOCLETIANO ET
MAXIMIANO INVICTIS AVGG ET
CONSTANTIO ET MAXIMIANO
N·N·C·C·SVB V P·AVR·ARPAGIO PR
PRAETOR · QVOD ERAT HVMO COPERT
ET IN LABE CONL·ET PRINC · ET BAL · REST·
CVRANT · FL · MARTINO · CENT · PP · C !!!!!

Date, 297 (summer)—305 (May). Aurelius Arpagius is a new Governor. The *praetorium* had evidently been left ruined for some time : and it is clearly distinguished from *principia*. CENT = *centurione* rather than *centenario*, which seems definitely post-Diocletianic. Martinus was a legionary N.C.O., in temporary command of the Fort's auxiliary cohort, whose name is missing.

Expanded reading :—Dominis Nostris Diocletiano et Maximiano Invictis Augustis, et Constantio et Maximiano Nobilissimis Caesaribus, sub Viro Perfectissimo Aurelio Arpagio Praeside, praetorium quod erat humo copertum et in labe conlapsum et principia et bal (???) restituta (sunt), curante Flavio Martino, Centurione, Praeposito Cohortis !!!!!.

I. A. RICHMOND.

A DATABLE FLINT TOOL

We have no intention of wearying our readers, in the continental style, with 'flints'. The one here illustrated, however, is of exceptional interest because it belongs to a type whose age and purpose are both known. It occurs in Egypt, where we came across it in 1928, when we were being conducted over the excavations at Saqqara by Mr C. M. FIRTH, the Chief Inspector in the Department of Antiquities in Egypt. We were allowed to keep a specimen for which the accompanying

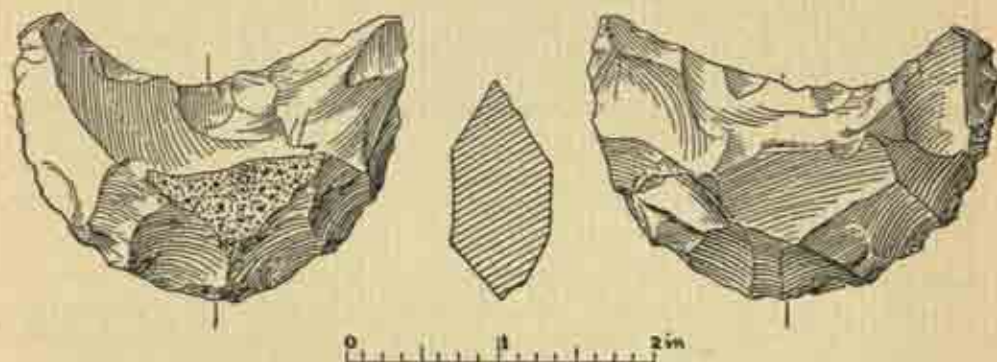


INSCRIPTION OF CONSTANTIUS CHLORUS FROM HIRDOSWALD

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illustration has been made. Mr Firth has kindly put in writing his account of its use, as follows:—

'The crescent-shaped flint is of the third dynasty [c. 2900 B.C.] and was used for cutting limestone. The specimen you have is from the Step Pyramid at Saqqara. To save work with their copper chisels the Egyptians drilled a sort of honeycomb of holes on the surface of the block which they wanted to shape—knocked down the partitions between these holes and then trimmed the surface down with copper chisels. The flint boring-head must have been mounted on a wooden spindle with weights at the upper end below the handle used to revolve it. The apparatus is shown in two Egyptian hieroglyphics, one having a cap or weight instead of the sand bags. It is the sign used to spell "hmt" = craftsmanship. These flint borers were formerly called



amulets from their horned shape. Their real use was discovered by my daughter. They are common in third dynasty sites and they are illustrated in the plates of Garstang's *Mahasna and Beit Khallat*, from the neighbourhood of the Mastabas of Sa Nekht and Neterkhet of this period. Curiously enough I never saw one on a classical old Kingdom site such as Giza or Abusir; it looks therefore as if these flints were a survival from the technique of stone vase drilling applied to the cutting of building stone, but abandoned in favour, perhaps, of sawing or the more extended use of heavy copper cutting tools'.

THE MOSAICS OF THE GREAT MOSQUE AT DAMASCUS

We are indebted to M. CONTENAU (of the Louvre) for the following account, which the Editor has translated, and to M. Eustache de Lorey for the illustrations which accompany it:—

When the Arab historian Mokaddasi visited Damascus in A.D. 985,

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he admired its mosque which, he said ' is the finest thing the Musulmans possess in our times . . . In those parts which are ornamented with mosaics there are represented trees, capitals and inscriptions of the greatest beauty and delicacy, most skilfully executed. There is hardly any tree or town known which is not figured on the walls '.

After the capture of Damascus by the Musulmans (A.D. 635) the mosque (formerly a church dedicated to St. John the Baptist) was decorated with mosaics by the Sultan Walid I (A.D. 705-715). Numerous restorations took place in subsequent periods ; in the 13th century, by Sultan Beybars (of whom an inscription has recently been found in letters of gold on a black ground) ; and in the 14th century by the Emir Tenkiz, who ruled Damascus. Then came the wave of Musulman puritanism, which carried out its appointed task, so that that which once has been the city's chief glory was alienated. Finally the mosque was destroyed by fire in 1893, and the whitewash with which the whole of the courtyard walls was covered made it impossible to know what the fire had spared, or even if it had spared anything at all.

Nevertheless, at certain points of the great court in front of the mosque itself, the accidental removal of a few flakes of plaster from the walls gave grounds for hoping that the sumptuous decoration of the Caliphs was not completely lost. M. Eustache de Lorey, after his appointment as Director of the French Institute of Archaeology and Moslem Art at Damascus, divined what treasures the whitewash might conceal, and exerted himself to obtain authority from the Wakf administration to carry out the necessary work. In September 1929 the results of his investigations were exhibited at the Museum of Decorative Arts in Paris in the form of photographs and tesserae ; for, as the photograph of the court shows, everything had not been destroyed. The mosaics were distributed along the arcades and more particularly along the wall of the cloister within ; they have been rescued and drawn by M. Cavro, architect of the French Institute at Damascus, and by his pupils.

The decoration, of which specimens are given (plates IV-V), is of quite an unexpected character. First, one should observe the perfect harmony between the subject and the place assigned to it in the scheme. Above the columns, at the spring of the arches, trees spread their foliage ; over the centre of the arches the branches interlace with horns of plenty ; finally on the walls themselves are huge compositions, one of the panels newly revealed being no less than 35 metres long.

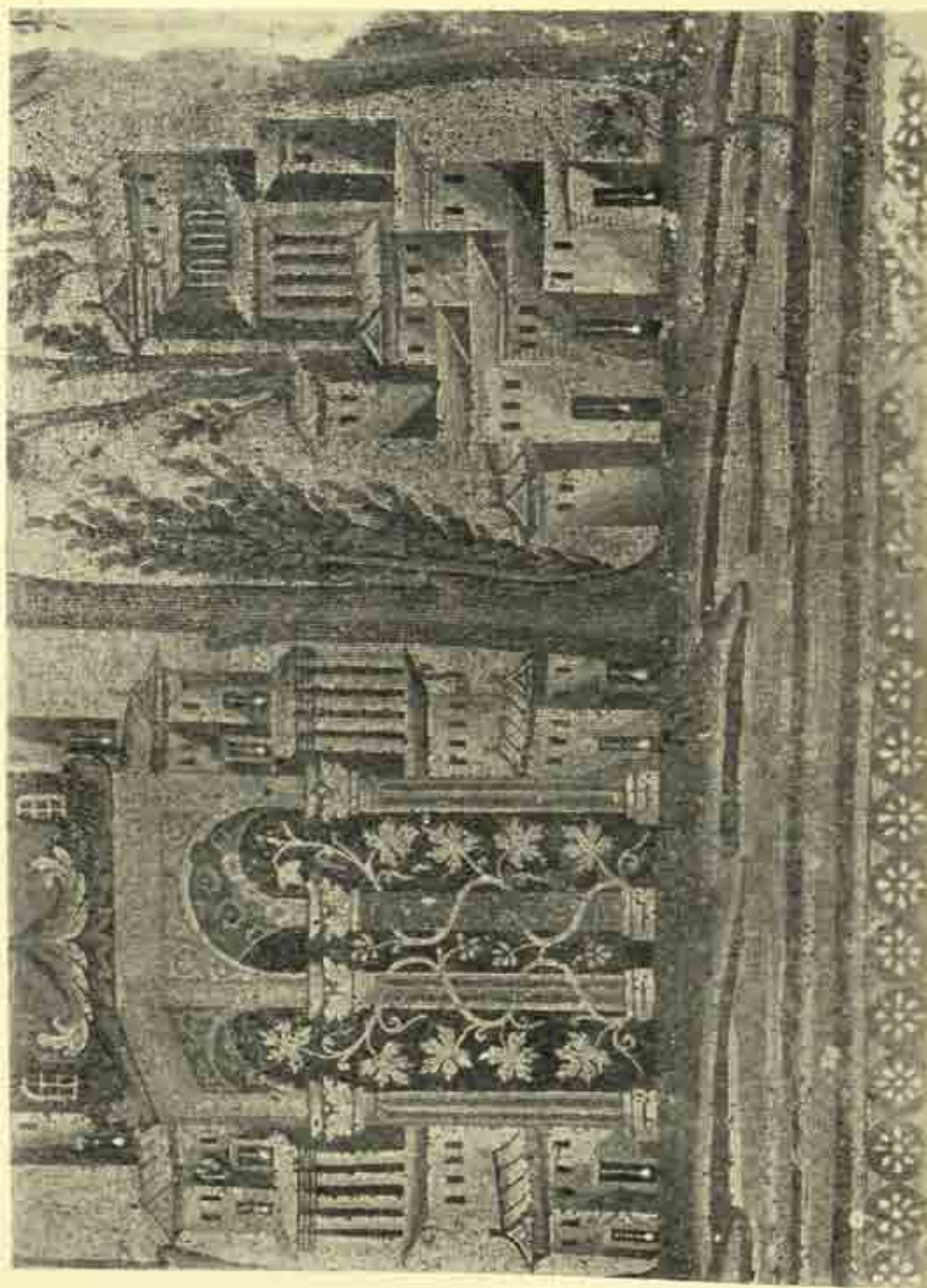
What is so remarkable, moreover, about these mosaics is their

PLATE IV



WESTERN PORTICO OF THE GREAT MOSQUE AT DAMASCUS

Ph. M. Huetzel de Lorey



MOSAICS IN THE GREAT MOSQUE AT DAMASCUS
Ph. M. Koudachov de Lenny

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naturalism and the freedom of their execution. The interlacing ornament of the arches is hardly at all conventionalized and the landscape is naturalistically represented. Although there is nowhere any living being, animal or human, the scenes represented are full of life and in excellent taste. The trees are very well designed; the foliage spreads out in no stereotyped fashion, but naturally and as it is affected by the wind. The houses are to some extent modelled on the lines of the wealthy villas imposed upon artists by the classical tradition; but we see also fancy summer houses such as the rich Damascenes might have built to spend the heat of the day within. Running through all is a touch of pure imagination, as in the leaf-like roofs, and some which resemble inverted flowers; or in the accumulation of material, the profusion of colonnaded kiosks and fragile buildings intermingled and piled one above the other regardless of perspective. The whole assemblage is stamped with its own date. By comparison, it falls well before the important repairs carried out on the Jerusalem mosaics; it found its inspiration in works like those at Ravenna and those of the church of St. George at Salonica, which date from the 5th century. We must therefore place the Damascus mosaics early in the 8th century; and we may well compare them, on the one hand with what remains of the older Jerusalem mosaics, which are almost contemporary, and on the other with that portion of these mosaics which was renovated in the 10th and 11th centuries and which is much more conventionalized.

Another influence to be observed in the Damascus decoration is that, remote but perceptible, of the Alexandrian landscapes and the Alexandrian technique. This feature derives fresh interest from the recent discovery at Jerash, in Transjordan, of mosaics representing storied groups of buildings, attached to which occur the names Memphis and Alexandria, suggesting that the artists were Alexandrians (see *ANTIQUITY*, December 1929, III, 478-80, plates 3 and 4, and colour reproductions in the *Illustrated London News*, 23 November 1929). This representation of individual towns agrees well with the passage in Mokaddasi quoted above.

But it seems, nevertheless, that the artists also derived their inspiration from what they could see around them. Along the bottom in front of every scene flows a slightly torrential stream like that which still gives its charm to Damascus and whose crisp and foaming wavelets are plainly represented.

It should be added that these mosaics are made of cubes of clear glass of bold colouring; cubes of pink or grey marble are in a minority.

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The background is of gold, and the artists have varied their shades of colour in a way to delight the modernists. Shadows are mauve or light pink, and on certain trees, whose trunk struck by a ray of light is marked by a bar of gold, one notes an admirable gradation of shading in the foliage; it passes from dark green to light, then to a delicate blue; whilst in places patches of shadow enliven the other colours by contrast.

The revelation of these mosaics must certainly be counted among the most remarkable events in the history of Musulman art. One can now see how rich were its beginnings, and that it could at least rival anything that had ever preceded it.

[The Damascus mosaics would therefore appear to have been made during the reign of Walid I, who was also responsible for the frescoes at Quseir 'Amra in Transjordan. These have hitherto been regarded as the earliest surviving relics of Musulman art. For a full account of them, with lavish illustrations, see A. Musil, *Quseir 'Amra*, K. Akad. d. Wiss. (Vienna 1907), I, 3-186; Jaussen and Savignac, *Mission Archéologique en Arabie*, vol. III, 1922. M. Contenau also contributed a description of the Damascus mosaics to the *Mercure de France*, 1 October 1929, pp. 182-7.—EDITOR].

AN AMUSING HOAX

Last October the *Dundee Courier* published the first news of an 'important discovery at Glamis' purporting to be a 'Runic record of a 7th century battle'. It was carved on a flat stone dug up in a garden in the village of Charleston, and a photograph of it was submitted to Lt.-Colonel L. A. Waddell, the author of various books which have not been reviewed in ANTIQUITY. 'The first glance showed', he says, 'that it was an inscription in the old Runic writing, and the record disclosed that it was written, not in Scandinavian, like so many of the Runic inscriptions hitherto found in Britain, but in the British language, and chronicled a battle on the spot'. The date assigned was the 7th century. Colonel Waddell transliterated the inscription as follows:—
STALE: KISTS: KAULT: HERE: JARLS: ALSA: J: LITTLE: TA: THE:
LA: TWA: AH: (I: M:); and his translation was:—'The army cists [stone coffins] (of the) killed here; of Earl Alsa (and) Earl Little. This is the lair (tomb) of the twain. Ah! (Alas!). (I: made [this])'.

Mindful of Glozel we sent the cutting to Professor R. A. S. Macalister, who occupies the Chair of Celtic Philology in the University of Dublin. His transcription was as follows:—STONE KISTS FOUND

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HERE AS ALSO A LITTLE TO THE NORTH. I.M. A precisely similar transcription reached us at the same time and independently from a correspondent in Scotland, with some amusing comments on the inaccuracies of the one first published and of the deductions drawn from it. It is plain that it belongs to the same class as another which acquired a brief celebrity—THISIS FORC ATTLETO RUBON THE YAREAS SESASSAY ITAINT; and the rock-inscription of Barnspike in Cumberland, which is solemnly discussed in Stephens' *Northern Runic Monuments*, pt. 2, pp. 648-54, but which is now known to have been a practical joke—as indeed the shape of the letters might have shown (see W. G. Collingwood's *Northumbrian Crosses of the pre-Norman Age*, 1927, p. 66).

The Glamis inscription was evidently the work of an antiquary, and there are reasons to suspect a certain individual who died towards the end of the last century. The initials I.M. (or J.M.?) would probably suffice for his identification if anyone should think it worth while to follow up the matter—which we do not! We publish these facts because they were suppressed by the Editor of the *Dundee Courier*.

THE EXCAVATIONS AT WARKA (MESOPOTAMIA)

Dr JULIUS JORDAN sends the following report* on the excavations at Warka, which were resumed last October:—

In 1912 the Deutschen Orient-Gesellschaft began excavations at Warka in southern Iraq, the city known to the Sumerians as Uruk, the cult-place of Innini and Anu. The scene of the Gilgamesh epic was laid here, and it was the Erech of Nimrod and the Orchoe of Hellenistic times. The work was resumed in the winter of 1928-9, in co-operation with the Notgemeinschaft der Deutschen Wissenschaft. As far back as 1854 W. K. Loftus had drawn attention to these ruins, the most considerable in south Babylonia, and from his partial excavation it was obvious that the site was one of great importance from the earliest Sumerian times to those of the Seleucids. The Deutschen Orient-Gesellschaft had uncovered the great sanctuary Bit rêš, together with the temple of Anu and Antum, dating from the time of the revival of Babylonian culture under the Seleucids. The site of a palace of king Singashid, belonging to the early part of the second millennium, was also located and investigations were begun on the Eanna temple of Ishtar, and on the city walls, with valuable results in the form of inscriptions and small finds.

* Translated by ROLAND G. AUSTIN, Glasgow University.

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Last winter a beginning was made with the systematic excavation of the Eanna temple of Innini-Ishtar, with such success that before the season ended the circuit of the temple enclosure, dating from the time of the Assyrian king Sargon II, was exposed, as well as the temple-tower (ziggurat) belonging to the 23rd century B.C., and a sanctuary on one side of it. Above the Assyrian stratum of the enclosure were found a few traces of the temple-buildings of the late Babylonian kings Nebukadnezzar and Nabonidus, and also of the Achaemenid Cyrus II. Beyond the temple circuit of Sargon was a small sanctuary dedicated to Innini, belonging to the time of the middle Kassite ruler Karaindash. Traces of a bas-relief were apparent on the bricks taken from the ruins of this little temple, of which but scanty remnants have been preserved. We have succeeded in piecing together these bricks to form part of a frieze, running round the base of the building, consisting of male and female genii some 1.40 metres high, set in perpendicular grooves. The figures hold flasks in their hands, from which streams of water spring to either side, running down along the wall to right and left. One may suppose that Kassite influence is responsible for this method of ornamentation, hitherto unknown in Sumer and Akkad, but which 300 years later appears again in an Elamite sanctuary at Susa.

As would be expected from the antiquity and importance of the Eanna temple, which was used for two thousand years as the cult-place of the goddesses Innini-Ishtar and Nana, the numerous small finds belong to various periods. As belonging to the third millennium I may mention here the throne of a seated figure in diorite; a lime-stone stele with a bas-relief; several little effigies of animals; stone vessels decorated with reliefs; a small head in limestone of a Sumerian priest; a terra-cotta head of a cult-figure, probably Kassite; a record of enfeeblement with astral symbols and an inscription of the later Kassite period; besides a large number of clay figures together with building-inscriptions on bricks, clay cones, cylinders and nails from the time of Enannatum to Cyrus. In the uppermost stratum were found thousands of clay tablets, of the period from Nabopolassar to Cambyses; the majority were mathematical or astronomical in character, or business documents and letters; there is also among them a fragment of the Gilgamesh and Creation epics.

The preliminary report on the results will appear in the Berlin *Abhandlungen der Preussischen Akademie der Wissenschaften*.

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The following additional note has been received from Dr Julius Jordan, in a letter dated 22 December 1929 :—This season's work has given us a glimpse for the first time of the oldest archaic strata of Uruk. Further, within the limits of the Eanna temple, on the southeast side of the ziggurat, there have been found the remains of buildings which belong to at least three distinct periods, all of them earlier than the Third Dynasty of Ur. Several more connected portions have been found of the well-known wall-mosaic† uncovered by Loftus 75 years ago; but what is of the greatest significance is that it can be proved by the evidence of clay tablets that these mosaics, with their beautiful coloured geometric designs, belong to the earliest period, probably one ante-dating the 1st dynasty of Ur. By this discovery our knowledge of the *oldest* art of the Early Sumerians, hitherto derived from the rich grave-finds of Ur, is considerably widened. We know now more also about the decoration of the temple buildings; and our admiration for the achievements of these remote ages is increased still more.

THE BRUNTON EXPEDITION

It was with very great pleasure that we read in *The Times* of 13 January an announcement that Mr John A. Roebling of New Jersey, U.S.A., had given £1,000 to the Trustees of the British Museum as a contribution to the expenses of the Brunton Expedition. Our readers will remember that an article by Mr Guy Brunton appeared in our last number, together with an appeal for funds which was referred to in an editorial note. It is therefore with equal pleasure that we have received, as we go to press, a letter from Mr Roebling himself, informing us that it was the editorial note in *ANTIQUITY* which led him to contribute to the Fund. We are glad to have been the means of obtaining such generous support for Mr Brunton's work and we hope that it may be an incentive to others to send donations to the Trustees for the same purpose.

† Made of painted cone heads and cone-shaped pots.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

The following extract from a letter (dated 14 October 1929) will be of interest to readers of the paper by Group-Captain Rees in our last number. It is printed here with the permission of the writer (Air Vice-Marshal Sir ROBERT BROOKE-POPHAM, C.M.G., D.S.O., commanding the R.A.F. in Iraq):—

‘I flew to Damascus and back last week, and about 50 miles east of Damascus, just clear of the northern edge of the Lava area, I saw a few kites exactly similar to those in the Azrak district, though my impression was that the enclosures were bigger. In one of these kites I saw camels. I made enquiries about them in Damascus, and eventually found one French officer who told me that they were used by the local Bedouins for rounding up gazelle, and that in each round up they expect to get about half a dozen’! Further inquiries were set on foot and we look forward to hearing more about this baffling problem.



A correspondent writes from Taiping, Federated Malay States:—
‘With reference to the paper by Mr F. G. Roe (III, 299-311) entitled ‘The “Wild Animal Path” origin of Ancient Roads’, the following recommendations for travelling in unknown hill country in the Malay Peninsula may be of interest. “When going from known point to known point through the jungle, and using the compass, try to find a hill-range leading in the desired direction. This will almost certainly have a more or less open game track, old or still-frequented, along its top; and the use of this will facilitate travelling very greatly”’.



With reference to the Cerne Giant, Dr CYRIL FOX communicates an interesting and (we believe) hitherto unrecorded custom. It is given on the authority of an old inhabitant who ‘told me that when he was a boy, the boys of the village used to go and play tip-cat on

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Good Fridays, on the level ribbon of ground below the Giant ; this was the only day of the year on which it was done. I went to look at the site ; it is a narrow, artificially flattened area at the foot of the slope near (above) the hedge bounding the Down, below the Giant ; that is on the west side of the Chalk Pit lane. I was also told that the inner enclosure of the Trendle, which is as you will remember a small and well-defined bank, was the base of a thorn-hedge, planted originally round a small group of fir-trees about 100 years ago. (This from the oldest inhabitant, transmitted by the Rector). The story has this to commend it—that there are two little thorns still surviving on the bank ; moreover the inner bank is obviously later than the outer one'. There is no indication of this hedge and the fir-clump on the oldest Ordnance Maps, but this does not prove that they were not there at some time or other. We are strongly inclined to accept the proposed explanation, which fits the facts perfectly.



Mr R. G. COLLINGWOOD writes :—

' In a footnote to an article in *ANTIQUITY* (III, 264) last September, discussing the Early Iron Age distribution of population, I quoted Professor Rishbeth's views as expressed in *Great Britain* (Cambridge, 1928). After saying that he thought the chalk uplands of south central England must have been originally occupied by forest, I went on, " but (he) quite fails to show why, if that is so, these lands were so emphatically chosen as a residence by primitive agricultural man ". Professor Rishbeth has most kindly, and in an altogether friendly way, pointed out to me that I was wrong about this ; he had, in fact, referred to " the virtual impossibility of settlement in low lying parts " (*op. cit.*, p. 75) and further suggested that the upland forest, being drier, freer of undergrowth, and easier to clear, had been " tenanted at first by hunters and then by hunter-pastoralists ", before agriculture arose on the now partially cleared land. Professor Rishbeth does not suggest that I should do public penance for misrepresenting him, but obviously I owe an apology to the readers of *ANTIQUITY*, in addition to that which I have already offered personally to himself'.



Rumour has it that the draining of Lake Nemi is to be discontinued, and that the results hitherto obtained are regarded as disappointing and out of all proportion to the labour involved. In one sense we are inclined to agree, to judge from the latest report kindly sent to us by

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a correspondent in Italy (*Rivista Illustrata del Popolo d'Italia*, October 1929). Three fine bronze animal-heads and a wooden hulk seem a poor return for so much expenditure. But it all depends upon what you want. If it is the advancement of knowledge, then technical skill would be more profitably employed sinking a shaft in, say, the Nile Delta or the Dogger Bank, or making an air-survey of Mesopotamia and the Syrian Desert.



Excavations at Herculaneum are revealing houses with frescoes. (*The Times*, 9 December, p. 11).



Dr Ugolini, the Head of the Italian Mission in Albania, has been continuing his work at Butrinto. He has discovered some Greek inscriptions of considerable interest and a large marble statue which he regards as the work of Praxiteles. (*The Times*, 7 December, p. 11 and illustrations on p. 16).



A Thracian tomb of about 500 B.C. has been found at Douvanli, in the district of Plovdir (Philippopolis). It contained 'silver, bronze and earthenware vases, and a gold diadem'. (*The Times*, 1 November).



Professor Gordon Childe is on the track of the elusive Picts, and we understand that he hopes before long to publish his ideas about them in full. A report of a recent lecture contains many suggestive remarks. (*The Scotsman*, 25 November).



The Royal College of Surgeons has the human remains from Ur, from the Shukbah cave near Mount Ephraim, and from East Africa, to examine. The results should be highly interesting to anthropologists, if the material is at all well preserved. (*East Anglian Daily Times*, 25 November).



The *Manchester Guardian* (13 November) publishes a long letter from Sir Arthur Evans on the discovery by Professor Persson of a 13th century inscription on the mainland of Greece. Sir Arthur criticizes the interpretation of the Swedish professor, as reported in the press.

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At the annual meeting of the British School of Athens held 5 November Sir Rennell Rodd outlined a scheme for the complete archaeological exploration of Ithaca (*The Times*, 6 November, p. 9) and in the issue for 14 November (p. 10) he addressed an appeal to the public to carry the project into effect.

The fund has the hearty co-operation of the Mayor and inhabitants of Ithaca. The undertaking deserves the support of all classical students and we wish it every success. Sir Rennell Rodd asks for subscriptions to be addressed to him at 39 Bryanston Square, London, W.1.

~ ~ ~

The British Museum has received the seven sculptured stones found recently in British Honduras. The larger ones are equal in size to some of the smaller monoliths at Stonehenge. The hieroglyphic inscriptions are expected to add to our knowledge of the Maya civilization. (*Morning Post*, 5 December, p. 5).

~ ~ ~

Sir Arthur Keith has reviewed the evidence for Early Man in China, most of which has been found by Dr Davidson Black of the Peking Medical College (*The Lancet*, 28 September, summarized in *Nature*, 19 October). Since then the announcement of the skull found on 2 December has been reported in the *Daily Telegraph*, 16 December, p. 11. The details have been communicated to the Geological Society of China (*The Times*, 30 December, p. 9).

~ ~ ~

The Roman fort of Housesteads, Northumberland, known in Roman times as Borcovicus, or (better) Borcovicium, situated on Hadrian's Wall, some 10 miles from Hexham, has been presented to the National Trust by Mr J. M. Clayton, who has thus ensured the preservation of one of the few remaining examples of Roman fortification in England. (*The Times*, 3 January, p. 7).

~ ~ ~

The work for the new season at Ur is outlined by Mr C. Leonard Woolley in a communication to *The Times*, 7 January, p. 13. It is proposed to investigate the city which existed before the Flood.

~ ~ ~

A fine pile-village has been revealed on the shores of Lake Ledro (province of Trent, Italy) by the lowering of the lake for industrial

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purposes. Excavations are being carried out, and the finds deposited in the Trent Museum (*The Times*, 24 October, p. 15).

◇ ◇ ◇

A cave at Covesea in Morayshire is yielding important results in the form of stratified remains of the Bronze and Iron Ages. Over 150 bronze Roman coins have been found by Miss Sylvia Benton, who is conducting the excavations. (*Scotsman*, 15 October).

◇ ◇ ◇

A dolmen has been discovered in the forest of Isle-Adam on the Oise near Paris. It yielded 'a large quantity of human bones, weapons of polished stone (presumably axes), fine axes with handles (or "gaines"?) of stag's horn and potsherds'. (*Paris-Midi*, 30 September).

◇ ◇ ◇

Colonel Lindbergh is taking air-photographs of the ruined Maya cities of Central America. The first publication of these has, we need hardly say, already been arranged for. We are in hopes of obtaining some for ANTIQUITY when the promoters of the venture have been appeased.

◇ ◇ ◇

The Sphere (10 August) contains some photographs of the ruined palace of Ukhaidir in Mesopotamia. This, as we remarked in our last number, was virtually discovered by Miss Gertrude Bell, whose fine account of it was published by the Oxford University Press in 1914.

◇ ◇ ◇

Apropos of desiccation, *The Times* publishes an interesting letter from Mr Henry Field, of the Field Museum, Chicago. His general thesis is roughly the same as that put forward, quite tentatively, by the Editor of ANTIQUITY some years ago in the *American Geographical Review* (January 1926, vol. xvi) though even then it was probably not original or entirely new. There are admittedly many difficulties in the hypothesis; but it is generally admitted that Arabia and the Syrian desert was a fertile region in late palaeolithic times, and eminently suited to support a nomadic hunting population. That it is now much less fertile is also admitted. Both Mr Field and the present writer have found abundant evidence of palaeolithic man in the Syrian desert; and it is natural to suppose that, at the onset of desiccation, the nomads may have settled in the well-watered lands of the 'fertile crescent' surrounding them.

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The excavation of Roman Alchester was continued for five weeks during July and August 1929. The region worked over was that adjoining the site of the 1928 operations to the south, *i.e.*, along and just within the eastern defences, south of the northeast corner. A section of the east stone wall of the town was laid bare—the most considerable yet uncovered. This wall, it can be now definitely stated, was about 9 feet thick, of rubble faced with roughly squared stones, and ran slightly behind the line of the 1st century earth rampart. No absolutely indisputable evidence of its date is yet to hand, but the indications are that it was built sometime during the 2nd century, either to replace or to strengthen the earth rampart. Its line from the northeast corner to the east gate is now completely established.

Just within the town wall section above mentioned a further portion of the House of 1928 was cleared, extending to the south. No walls were found, but a large area of the same mortar and stone floor, covered with the debris of the collapsed building. The dating—early 2nd century—arrived at in 1928 was confirmed.

Professor V. GORDON CHILDE writes :—

'Vinča, a prehistoric station near Belgrade, has long been recognized (*vide* ANTIQUITY, 1, 82) as a key site in North Balkan archaeology, both because its 10 metres of stratified deposit provide a unique sequence of cultures and because its relics exhibit similarities to those found both farther up the Danube and in the Aegean region. Prof. M. M. Vassits, the original discoverer of the site, last year resumed work upon it with the aid of Sir Charles Hyde, uncovering the so-called middle strata over a large area. The results are described in the *Birmingham Post*, 27-28 November 1929. They confirm previous deductions from the stratigraphy of the site and not only afford fresh links with the Aegean area but give a clue to the date of the true painted pottery of Serbia. Evidence for cinnabar mining in the vicinity was also obtained. The excavations are to be continued next June, when the lower strata will be explored'.

CONFRONTO DA

The following corrections should be made in the paper in the December number of *ANTIQUITY* by Professor Oscar Reuther on the German excavations at Ctesiphon:—

page 436, line 1, for photographed read surveyed

" 441 " 13 " after photographs had been taken ~~read~~ after measurements and drawings had been made

" 445 " 34 " gypsum *read* plaster

449 " 18 *read* probably rooted in

20 for 9-metre span read 11-metre span

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. Books are occasionally included.

Mycenaean Plumes, by Leicester B. Holland. *Amer. Jour. of Arch.* xxxiii, 173-205.

The Achaeans, by William K. Prentice. *Ib. id.* pp. 206-18.

[The following are selected from a list published in THE AMERICAN JOURNAL OF ARCHAEOLOGY, xxxiii, 220-264, where short summaries are given. The titles given here are descriptive only].

Primitive Art on the Edge of the Gobi Desert, by Volodimir Riznichenko. *Antropologiya*, 1927, pp. 119-134.

Rock-carvings of deer, bear, horses, dogs, etc., in the district of Zaysan, in the land of the Kirghiz. 'There are some hunting-scenes, but in general human beings are not as well represented as animals . . . The designs seem to agree with those of Aurignac and Solutré except for the representation of the dog'. Modern fauna only; no extinct species.

Hallstatt Tumuli, by Maurice Piroutet. *Rev. Arch.* (1928), xxviii, 220-281, 28 figs.

Deals with those in Franche-Comté and the jurassic plateau of Eastern France.

Neolithic graves at Méry (Seine-et-Oise), by B. Bottet. *Rev. Arch.* (1928), xxviii, 14, 15, fig.

'The objects found comprise three stone axes, a sheath of deer-horn, a tomahawk of the same material, a flint spear-head, and a shell with two holes for suspension'.

Banded Pottery (Band-keramik) in the Danubian Culture, by Wilhelm A. Jenny. *Mitt. Anthr. Ges.* lviii, 21-103, 10 plates and 13 figs.

The Roman Defences of the Lower Danube, by Georges Cantacuzène. *Aegyptus* (1928), ix. [Summary in *Rev. Arch.* (1928), xxviii, p. 144].

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A Pannonian Factory of *Terra Sigillata*, by Lajos Nagy. *Archaeologiai Ertesito* (1928) XLII, 96-113.

The Rôle of the Ural-Altaic Peoples in World History, by Oswald Menghin. *Archaeologiai Ertesito* (1928), XLII, 223-238.

Extra-Continental relations of the American Indians, by J. Imbelloni. *Mitt. Anthr. Ges.* LVIII, 301-331.

Cultural connexions between New Zealand, Polynesia and South America suggested by resemblances of objects, functions and language.

Les lieux-dits du département de Maine-et-Loire dans leur rapports avec la Préhistoire, by O. Desmazières. *Bull. de la Soc. préh. franç.* (May 1929), XXVI, 294-298.

An interesting collection of place-names, particularly those relating to megaliths, with some notes on the use in France of the word 'folie, foliette', corresponding to our 'Folly'. 'Paradise' is explained as a hollow way between two live hedges.

Station Aurignacienne du Champ de Bagasse à Nag-Hamadi (Upper Egypt), by Ed. Vignard. *Bull. de la Soc. préh. franç.* (May 1929), XXVI, 299-306.

[The section illustrated on p. 299 being wrong, another was distributed with the next issue of the *Bulletin*, for substitution].

Une Sepulture de l'Age du Bronze à Courtavant (Aube), by M. G. Lapiere. *Bull. de la Soc. préh. franç.* (May 1929), XXVI, 307-9.

A fresh discovery at this important site, which should be photographed from the air and systematically excavated.

Museums, Libraries and Local History, by William Pollitt, F.S.A. Reprinted for private circulation from *The Library Association Record*, 1929.

The Galleys of Caligula, by Albert Buhrer. *Nineteenth Century*, August 1929, pp. 222-9.

An account of efforts made to raise the galleys from the first attempt in 1446.

The Early Iron Age in England and Wales, by Cyril Fox. *Proc. Camb. Ant. Soc.* (1929), XXX, 52-3.

A brief summary of what must have been a most interesting paper.

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Excavations in the Cambridgeshire Dykes. vi. Bran Ditch, Second Report, by T. C. Lethbridge and W. M. Palmer. *Proc. Camb. Ant. Soc.* (1929), xxx, 78-96.

A most valuable report. The discovery of a Saxon cemetery associated with and *earlier than* the rampart of Bran Ditch has proved the earthwork to have been constructed during the Saxon period.

Die Wälle in Bessarabien, besonders die sogenannten Traianswälle ; ein historisch-geographischer versuch, by Dr C. Uhlig, Professor of Geography in Tübingen. *Praehistorische Zeitschrift* (1928), xix, 185-250.

This little monograph, complete with sketch-maps, bibliography (including maps) and index, is a model of research. The walls are *ideal* subjects for air-photography. If the Roumanian government is unable to undertake the work, will not some private individual get up an expedition for the purpose ?

La Station paléolithique du Mont Dol, by A. Vayson de Pradenne. *L'Anthropologie* (1929), xxxix, 1-42, 12 plates.

A clearly written and masterly account of a Mousterian site between St. Malo and Mont St. Michel. The importance of the site lies in the evidence it provides for the level of the sea during Mousterian times. M. Vayson sets down the facts and draws conclusions of general import from them ; and criticizes the too-simple system of M. Déperet (C.R. des séances de l'Académie des Sciences, 25 March 1918 to 19 June 1922).

Notes sur l'industrie lithique de Kish, Iraq, par L. Ch. Watelin, Directeur des fouilles. *L'Anthropologie* (1929), xxxix, 65-76.

Les forêts et le peuplement de la Gaule, par MM. Lantier et Hubert. *L'Anthropologie* (1929), xxxix, 132-4.

A note by M. Lantier on an unfinished article by M. Hubert.

L'ancienneté de l'exploitation de l'étain dans le nord-ouest de l'Espagne. *L'Anthropologie* (1929), xxxix, pp. 134-6.

Pithecanthropus Erectus, by H. Weinert. *Zeitschrift für Anatomie und Entwicklungsgeschichte* (1928), lxxxvii, 429-547, 34 figures.

A valuable monograph incorporating new evidence. Reviewed by R. Vauflrey in *L'Anthropologie* (1929), xxxix, 143-6.

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Studies on the growth of Gorilla and of other higher primates, with special reference to a foetus of Gorilla preserved in the Carnegie Museum, by A. H. Schultz. *Mem. Carnegie Museum*, 1927, vol. 2.

The author concludes that the Gorilla is more nearly related to man than the Chimpanzee, the Orang and the Baboon, which he places in that order of consanguinity.

Palaeolithic fishing-tackle, by Albert Wade. *Salmon and Trout Magazine*, April 1929. Translated from a paper by Dr René de Saint Périer. *L'Anthropologie* (1928), XXXVIII, 17-22.

Another link with the Esquimaux.

La Palmyrène et l'exploration de M. Alois Musil, by René Dussaud. *Syria* (1929), X, 52-62.

Consists mainly of a learned and valuable dissertation by M. Dussaud on the Roman roads and named places in the triangle Aleppo—Homs—Damascus—Palmyra—Deir-*ez-zor*—Euphrates, with a map of them.

Offa's Dyke: a field Survey. Fourth Report; Offa's Dyke in Montgomeryshire. By Cyril Fox. *Archaeologia Cambrensis* (June 1929), LXXIV, 1-60.

A detailed and fully illustrated description of this section. For a general account of Offa's and other dykes see Dr Fox's paper in *ANTIQUITY* (June 1929), III, 135-54, 16 figs.

The Science of Man in the service of the State, by J. L. Myres. *Journ. R. Anthr. Inst.* (1929), LIX, 19-52.

Among some unknown tribes of South Arabia, by Bertram Thomas. *Journ. R. Anthr. Inst.* (1929), LIX, 97-111.

A short and rather confused, but first-hand, account of a little known region, with notes on the ancient remains.

The nature of the colour of pottery, with special reference to that of Ancient Egypt, by A. Lucas. *Journ. R. Anthr. Inst.* (1929), LIX, 113-129.

An admirable account, mainly of red and black pottery, illustrated by plates belonging to the article which follows it.

Anniversary Address [to the Society of Antiquaries], by the Earl of Crawford and Balcarres. *Antiq. Journ.* (1929), IX, 193-216.

A general survey and a plea for research.

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Leaves from an Anatolian Note-book, by W. M. Calder. *Bull. of the John Rylands Library, Manchester* (July 1929), XIII, 254-271.

Assyriology in England during and since the War, by T. Fish. *Ib. id.* pp. 293-304.

A very useful summary.

A further note on Hermes, by J. Rendel Harris. *Ib. id.* pp. 305-308.

Connects Hermes linguistically with the word 'elm'. We are surprised that a reputable journal should publish such rubbish.

Guide to Egyptian Antiquities from Mostagedda, Badari District, Middle Egypt, 1928; exhibited in the Nineveh Gallery, British Museum, 9-27 July 1929. By Guy Brunton. Free.

The Origins of road transport, 3500-500 B.C., by Hugh P. Vowles. *Roads and Road Construction* (1 May 1929), VII, pp. 173-175. [Continued from p. 133 of the same volume].

Ur of the Chaldees: more Royal Tombs, by C. Leonard Woolley. *The Museum Journal* [Univ. of Pennsylvania] (March 1929), XX, 7-35, 18 illus.

The Palestine Expedition: Report of the 1928 season, by Alan Rowe. *Ib. id.* pp. 37-88, 35 illus.

The two Royal Stelae of Beth-Shan, by Alan Rowe. *Ib. id.* pp. 89-98, 3 illus., including sketch-map.

A new expedition to Egypt, by H. H. F. Jayne. *Ib. id.* (June 1929), pp. 113-118.

An expedition [of the Museum of the University of Pennsylvania] has been formed under the leadership of Mr Alan Rowe, and in November [last] began work at Medum, some fifty miles south of Cairo.

Les civilisations néolithiques et énéolithiques de la France. *Rev. Anthr.* 1928-9. Pp. 61. [Em. Nourry, 62 rue des Ecoles, Paris V. 8 francs].

An excellent summary. We would warn intending purchasers that the cost of postage and packing demanded is nearly as much as that of the pamphlet itself.

Note géologique, préhistorique et protohistorique du territoire de Wimereux (Pas de Calais), par Mlle Augusta Hure. *Bull. de la Soc. préh. franç.* (June 1929), XXVI, 345-52.

Reviews*

AIR-PHOTOGRAPHY FOR ARCHAEOLOGISTS (Ordnance Survey Professional Papers, new series, no. 12). By O. G. S. CRAWFORD, F.S.A. H.M. Stationery Office. 1929. pp. 44, with 19 plates. 4s 6d.

Mr Crawford has in his earlier works established the importance of air-photography in the modern study of archaeology. He now goes on to supply a real need in dealing with the practical side of the question, and this book provides field-workers and aviators with clear and concise guidance as to the circumstances under which air-photography may be expected to be helpful, the means by which it achieves its objects, and the limitations which some enthusiasts may forget that it inevitably possesses. The technique of the actual photography is beyond the scope of the work, but the author deals with the choice of suitable subjects in regard to season, time of day, lighting, soils, crops and the nature of the antiquities to be recorded. He divides suitable subjects into three main varieties:—(1) 'shadow-sites', where grass-covered earthworks are thrown into relief by oblique sunlight; (2) bare soils, where chalk banks that have been destroyed by ploughing may sometimes be revealed by a white smear on a ploughed field; and (3) 'crop-sites', in which hidden ditches, foundations, etc., are revealed by means of a change of colour in the oats or wheat growing over them—a change which is caused by varying degrees of moisture or richness in the soil. The best known example of this last method is the remarkable air-photograph of the lost Roman city at Caistor, near Norwich, that appeared in *ANTIQUITY* for June 1929, p. 183. Of these three classes of subjects the first is the most obvious, the second the least useful because it is the most vague, and the third is the most spectacular and the one by which most new discoveries are likely to be made. So scientific has archaeology become since the war that no means of knowledge, however trivial, is despised; even the homely potato may be of archaeological significance if it happens to grow over a hidden ditch so that its leaves are a darker green than those of its neighbours!

The illustrations consist of nineteen full-page air-photographs, well-chosen and beautifully reproduced. They are selected specially to illustrate the points which the author emphasizes as to the suitability or otherwise of various kinds of subjects for air-photography. Specially striking are the five cases in which two photos have been taken of the same site under different conditions, as morning and evening sunlight, or no sun at all, bare soil and crops, or grass and oats. Antiquities invisible or barely visible under one set of conditions may stand out with startling clearness under another. In one photograph the Stonehenge Avenue is seen traversing, first turf-covered downland, and then a field of wheat. Seen from the ground this earthwork is well preserved in the former part of its extent and completely obliterated in the latter. From the air, however, both parts are equally visible and almost identical in appearance, though the method of their showing up is different in each case.

* We regret that owing to pressure on our space a number of reviews are held over.

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So far, excellent; but what the field-worker still needs to know is how he may get sites of his own choosing photographed to order. This we hope will come in time, and we know that Mr Crawford would supply this information if he could, for he points out on page 5 what immense fields of research await attention in all parts of Britain. It is earnestly to be desired that it may be possible for some arrangements to be made with the Air Force authorities by which co-operation could be established between archaeologists and observers in training.

Only one grumble: why do government publications persist in using cheap-looking, straw-coloured paper which private publishers would be ashamed to use? Also, larger type, involving more pages, would greatly facilitate reading, and would be worthier of an otherwise admirable publication.

E. CECIL CURWEN.

PREHISTORIC SUSSEX. By E. CECIL CURWEN, M.D., F.S.A. *Homeland Association*, 1929. pp. 172, *illus.* 10s. 6d.

In the foreword to this book Mr Crawford alludes to the helplessness of an interested but uninstructed public who have no means of distinguishing between good and bad archaeological books. The only remedy is their education, and it is by books of this class that that education will be brought about. Seventeen years of thorough fieldwork have given the Author a knowledge of his ground and of his subject that can be felt on every page, both by the uninstructed and the expert; for though there is nothing too heavy or too technical in the book for the general public to appreciate, his accurate descriptions, the clearness of his summaries and his careful references will be of service to all archaeologists.

After an admirable introduction, he has chapters on flint-mines, barrows, hill-forts, villages and cultivation, prehistoric and Roman roads, and miscellaneous earthworks; with a final technical chapter on the detection and mapping of earthworks, of which he has recorded many for the first time.

Sussex, with the exception of Grime's Graves in Norfolk, has at present a monopoly in England of proved prehistoric flint-mines, though there are suspected, but as yet unexcavated, sites in other counties, and the vivid first-hand descriptions of the conditions found at Blackpatch and Harrow Hill should do much to stimulate scientific research elsewhere.

In long barrows the South Downs are not so rich, though there are two small groups at the extreme east and west of the range. Bronze Age round barrows, both single and in groups, are more numerous and occur all along the line—from Kent to Wiltshire they grow commoner as one goes west. Disc barrows occur, though in the description of them no mention is made of the central tump, and it is stated that the ditch may be found outside the bank.* Allusion is made to the rare 'platform' barrow, of which an example is noted but not described on Lewes Race Hill. Pond barrows are not mentioned, though the hollow north of the Ridgeway on Glatting Down looks very much like one. Some of the smaller single specimens of round barrows on the Downs, which used to be considered Saxon, have been proved to be Romano-British, and there seems to be no group of pagan Saxon barrows such as occur in Kent, and which we might expect after the thirteen years stubborn fighting which took these invaders from Chichester to Pevensey. A good summary of the late Mr Hadrian Alcock's views on circuses, of which two have been excavated in Sussex, concludes the chapter.

* Instances of this occur in Wiltshire also.—EDITOR.

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The chapter on the hill-forts contains descriptions of the Author's excavations at the Caburn and the Trundle, and a special surface-study of Cissbury. The Trundle and Whitehawk camps have been proved to be neolithic, and a third at Combe Hill has the characteristics of this rare and newly-discovered class. Both Cissbury and the Caburn yielded evidence of their Early Iron Age date, as well as of strengthening and reconstruction after they were built—the Trundle is an example of an Early Iron Age fortification placed on top of a neolithic entrenchment—another instance of the continuous occupation of an early pastoral site. The time is ripe for an analytical classification of the hill-forts—of the twenty-four listed by Dr Curwen only a few seem to be of the strong Early Iron Age type, so common further west, with ramparts anything from ten to more than twenty feet above their ditches. Such camps as Halnaker and Bow Hill, with their four or five foot banks, have really nothing in common with Cissbury or the Trundle beyond their hill-top position. Detailed measurements might have overloaded the book, but the vertical crest-ditch height would have been welcome, and would have helped the reader to visualize the strength and character of the entrenchment. Sussex is fortunate (for Saxon earthworks are rare), in having no less than three 'burhs' mentioned in the Burghal Hidage—at Lewes, Hastings and Burgham—and of these the last two survive.

Dr Curwen and his father are so well known for their admirable work on the remains of prehistoric cultivation and settlements upon the Downs, that the reader will turn at once to the chapter on this subject, and he will not be disappointed. The description of the Park Brow agricultural settlement, with its successive occupations in the Late Bronze, Hallstatt and La Tène times, each with its distinctive form of habitation, and its evidence of prosperity under the Pax Romana and its burning and destruction by the Saxons, makes most interesting reading. Here at least Archaeology deciphers and presents to History a document of real importance.

The chapter on roads is one of the most interesting. The Author deals thoroughly with Stane Street and the two other certain roads out of Chichester, one of which is now lost, as well as the easterly road which probably existed. He discusses terraced and engineered Romanized trackways which slope up to the Ridgeway, and the 'underhill' roads which connect up along the edge of the Weald for the whole length of the South Downs. These lanes, by a careful and laborious examination of the Domesday manors and the modern map, he clearly shows to be a series of connexions between the Saxon settlements, and not a continuous entity.

To the main Ridgeway, which reaches from Beachy Head to Winchester, and so on across Salisbury Plain to Cornwall, he perhaps does not do full justice. He proves, for the first time we think, the neolithic age of two roads connected with it by the fact that neolithic flint-mines have cut completely through them, and it must have been a great trade-route for cattle and other exports at least as early as the Iron Age. It is probably the key to many an archaeological problem, especially in Sussex.

The class of linear earthworks, discussed in this chapter, to which Colt Hoare's unfortunate question-begging term of 'covered ways' is still applied, again calls out for analytical study. The single-banked Rackham Bank, for instance, of defensive type, and the part of the Wardyke in Arundel Park, or the long continuous earthwork along the edge of Rewell Hill above Fair Mile Bottom, have not much in common with one another, and still less with the double-banked cross-ridge ditches, which span the Down between precipitous scarps or from scarp to forest. Dr Curwen is wisely cautious and non-committal as to their purpose, though perhaps too ready to speak of them as roads ;

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but his suggestion that they were cattle-ways will explain many of them—indeed, it is in this direction, as it seems to the writer, that the solution of many of the puzzles must be sought. In West Sussex at least, many of the so-called hill-forts and supposed 'British camps' such as Bow Hill, Bexley Bushes and Fernbeds seem best explained as protected cattle enclosures. The half-wild cattle must have roamed in the forest of the Weald and over the patchy scrub of the wide southern slopes, and rounding them up for mustering, sorting and marking must have been a difficult business. The typical v-shaped narrow-bottomed cross-ridge ditches between double banks, probably topped by a wattle fence, would admirably serve the purpose of the 'cattle-races' of a modern Argentine estancia, while the 'kinks' might be the places for the swing-gates which, in South America, are operated from a bridge. The tracks leading up to the ends of the cross-ridge ditches, the single-banked protective-type cross dykes, which sometimes occur in connexion with the double-banked, and the doubling and trebling of the latter, seem to fall in with this hypothesis; while the two Rewell Wood enclosures, which, from the absence of *reliquiae* can hardly have been for human occupation, may be examples, the one of a very highly complicated, and the other of a comparatively simple, cattle-enclosure.

The description of the tracing of the ancient road from Portslade to the Ridgeway is an excellent example of the delights of field-work, and also of the careful inductive reasoning required to prove conclusions; we must, however, record a doubt that 'slade' ever had the meaning of 'road'.*

The three special descriptions in the last chapter of Windover, Rewell and Bow Hills, with their scenery and their problems, are such as make the Field Archaeologist's mouth water. The inhabitants of Sussex—prehistoric and present-day—are fortunate in having the two Dr Curwens to work out their history.

One must not forget to praise the excellent photographs and illustrations, nor the happy thought of making the inevitable loose cover justify its existence as an index sheet and archaeological map.†

J. P. WILLIAMS-FREEMAN.

THE ARCHAEOLOGY OF THE CHANNEL ISLANDS. By T. D. KENDRICK.

In 2 vols. Vol. 1. The Bailiwick of Guernsey. Methuen. pp. 273, 20 plates and 131 figs. 1928. 25s.

This is an important book, full of information, and containing some new and well-balanced theories.

The Bailiwick of Guernsey, which includes the islands of Alderney, Sark and Herm, was an island archipelago at such times as Jersey was part of the mainland of France. This may have been the cause of its remaining uninhabited until the coming of the sea-faring beaker-folk from the south, and of the length and brilliance of its megalithic culture which prospered until about the 1st century B.C., although during the latter part of the Bronze Age a certain amount of intercourse with Britain made its influence felt. There was a settlement in Alderney by a Roman garrison, but 'the romanization of the Bailiwick proceeded slowly, nor are the antiquities of the period of any great account'.

* We think Dr Curwen is following the interpretation given in Roberts's *Place-names of Sussex* (1914, p. 126) where the second element is stated to be *(ge)lad*. But we do not think that this either can mean a road. For both *(ge)lad* and *slad* see ENGLISH PLACE-NAME SOCIETY, vol. 2, part 2:—*The Chief Elements used in English Place-names*, by Professor Mawer. For the word Portslade as a whole, see *E.P.N.S.*, vol. VII, when published.—EDITOR.

† We are glad to learn that a second edition of Dr Curwen's book is already announced.—EDITOR.

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Mr Kendrick considers the Guernsey statue-menhirs to be survivals many generations later in date than the Bronze Age. The famous bronze hoard from Longy in Alderney dates from the end of the Bronze Age, and all the objects were probably imported from Britain. There were no deposits of copper in the Channel Islands, no true dolmens, no true alignments, and no dressed stones with the exception of the statue menhirs.

The stone monuments Mr Kendrick classifies as follows:—dwelling places, burial chambers, menhirs, lines of small stones. Burial chambers are further divided into two classes. Class I (communal burial chambers):—type a—passage graves; type b—chambers without approaching passages; type c—communal cists. Class II (single graves):—type a—cist in barrows; type b—cist in circles; type c—isolated cist.

There is a chapter devoted to grave-furniture, most of which is occupied by a scholarly survey of the various types of pottery. The remainder of the book consists of a detailed description of the individual sites.

The illustrations are numerous, clear, and for the most part in the right place; that is, in or opposite the text that refers to them. The writing of this altogether admirable book must have entailed an immense amount of painstaking and discriminating research work. The author has set himself a high standard for the second volume, which we are now eagerly awaiting.

R. C. C. CLAY.

ROMAN YORK: EXCAVATIONS OF 1926-1927. By S. N. MILLER. *Journal of Roman Studies*, vol. XVIII, 1928, pp. 61-99, plates IV-XI.

The Roman legionary fort of York, which in its latest stage enclosed an area of fifty acres, formed a rectangle of which the four corners pointed to the cardinal points of the compass. In post-Roman times a great mound of earth was heaped over the north-eastern and northwestern walls of the Roman fort, which were yet standing in places to the height of sixteen feet, and, still later, the medieval city wall was carried along the top of the mound. Excavations made into this mound in 1925 at the east corner of the fortress, described in volume xv of the *Journal of Roman Studies*, revealed the existence of a clay rampart, which appeared to have been thrown up by Petilius Cerealis in A.D. 71-74, and to have formed the earliest defence. A stone wall had been built along the outer margin of this rampart in the reign of Trajan, and was found to have been superseded in its turn, at the close of the second century, by a later wall, built immediately behind the earlier one which had been demolished. The corner was found to have been protected by an internal tower of stone.

Further excavations carried out in 1926 and 1927 by Mr S. N. Miller, who has been in charge from the outset, are described in volume XVIII of the same *Journal*. The corner turret was completely excavated, and a post-hole showed it to have been preceded by a wooden structure. It may safely be inferred that the wooden turret was contemporary with the clay rampart: its stone successor was perhaps slightly earlier than the first stone rampart wall. It was again rebuilt, and its basement was finally filled in solid. None of these features are traceable in the large fourth-century external bastion known as the Multangular Tower, at the opposite corner of the fortress, and trenches dug at that point revealed no early work. This showed that the Multangular Tower does not represent the original west corner of the fortress, and raised the presumption that the northwest and southwest rampart walls, of which that tower forms the angle, were on a line different from the original defences.

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The rest of Mr Miller's excavations were devoted to clearing up this point. It was already known that the wall built in the Commodus-Severus period continued in use till the end of the Roman occupation for some distance on either side of the east corner, and that here there had been no change of line. The earlier wall was traced as far as the northeast gateway, but between that point and the north corner its place had been taken by a fourth-century wall, built, apparently, upon the concrete foundation of the earlier structure. Trenches cut in the northwest defences disclosed the fact that here also the wall was of fourth-century date, but, as at the western bastion, there was no sign of earlier work. That the earlier defences had taken a different line was made more apparent by the discovery, close up to the wall, of barrack buildings of the earlier period. It follows that, in the fourth century, perhaps in the time of Constantius Chlorus, the legionary fortress was reduced in size, but the original line of defence on two of its sides has yet to be discovered.

H. H. E. CRASTER.

THE PITT-RIVERS MUSEUM, FARNHAM. Handbook edited by L. H. DUDLEY BUXTON. *Farnham Museum*. 1929. Price not indicated.

A popular handbook of the Pitt-Rivers Museum at Farnham, in Dorset, was very badly needed. The present book makes a valiant attempt to deal adequately with the rich material stored there. Its publication is due to the revival of interest aroused by Captain George Pitt-Rivers. It consists of notes on the district by Captain Pitt-Rivers, a brief memoir of General Pitt-Rivers by Mr St. George Gray, followed by a description of the Museum itself and a number of objects of interest in it. Mr Gray also contributes a chapter on the models of ancient sites excavated by the General. There is a chapter on 'the Clay and the Pot', by Dr H. J. Harrison, on 'Ceremonial Objects' by Dr Marett, and on 'an Egyptian Tombstone' by Professor Griffith. The Editor contributes a chapter on the 'Works of Art from Benin' and other subjects.

We cannot help feeling that, excellent as the handbook is as a whole, it falls short in respect of what, after all, was General Pitt-Rivers' main achievement, the work which he carried out in his own grounds. He was the first archaeologist to carry out scientific excavations, and he will be known for that long after his work in anthropology has been forgotten. There is a certain incompatibility between some of the specimens in the Farnham Museum from the other side of the world, and those which he dug up on his own estate, and we cannot help thinking that the former would be more suitably housed in a national ethnological museum, did such exist.

Students should be grateful to Captain Pitt-Rivers for the good work he is quietly carrying out in pursuance of his grandfather's ideals. It is up to archaeologists to support him to the fullest extent in this mission, and such small criticisms as we make really fall as much upon them as upon those responsible for this handbook.

A few miscellaneous points:—on page 7, it is more likely that the 'mere' in 'Larmer' means a 'pond', and that the first part refers to some yellow flags which grew in it. The writer is apparently unaware that this interpretation is given in a study of the bounds by Dr Grundy, published in the *Archaeological Journal*, LXXVII, 29.

A photograph is published of the model of the Roman villa excavated at Iwerne. This was the last work carried out by the General immediately before his death, and one of the many disastrous results which ensued therefrom was that no attempt was made to publish it. If not too late, we wonder whether Captain Pitt-Rivers could not now remedy this misfortune? The building in question was excavated with the General's

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characteristic thoroughness, and since then very few isolated Roman buildings have been dug with equal care. There are other legacies which remain, such as, for instance, the unique hoard of winged axes from Donhead, of which the learned world is still in complete ignorance. Incidentally, we would suggest that the second edition, which is certain to be required, should mention, in the title, the fact that Farnham is in Dorset. Nine out of ten people who see this handbook away from the Museum will conclude that it is at the Farnham in Surrey; in fact, practically everyone to whom we have mentioned the Museum as one that *must* be visited has concluded that it was in Surrey, and we believe that some have even gone to that place and been disappointed.

EURASIA SEPTENTRIONALIS ANTIQUA : Journal for East European and North Asiatic Archaeology and Ethnography. *Edited for the Finnish Archaeological Society by U. T. SIRELIUS and A. M. TALLGREN.* Vols. I-III.

Prof. Tallgren of Helsingfors was the first prehistorian from the capitalist west to travel in the Union of Soviet Socialist Republics. One result of his journey perhaps was the foundation of this international journal for the study of that diversified, yet in history always interrelated, area which extends from the Baltic to the Behring Straits. Its effect is to make known to the Western world in English (unfortunately not very often), French or German the amazing results being obtained by Russian, Finnish, Lett and Polish excavators.

The first volume, published in 1926 but numbered II, is entirely devoted to a study by Tallgren of South Russia in pre-Scythian times. Here we get access for the first time to the results of pre-war Russian excavations in those steppe kurgans in whose builders Myres, Peake and Childe have sought the first Aryans. The account is abundantly illustrated and unified by the author's personal study of the local museums and sites. He also describes the Late Bronze Age industry of the Ukraine wherein Hungarian types predominate, but spear-heads with crescentic openings in the blades, although cast locally, suggest connexions with Britain.

Our knowledge of the steppe cultures is greatly extended by the Russian excavations published by the excavators in subsequent numbers. Notable is Rykov's account of the 'Chvalynsker Kultur' on the Lower Volga in vol. I (spear-heads with folded sockets or ? cast sockets and an ear associated with 'copper age' types of daggers and axes); Bortvin's 'The Verkhny-Kizil Find' in III (a hoard of the same period from the Ural region); and Schmidt's discussion of the whole subject in the light of the Ur finds in IV, raising the dating of the great North Caucasian kurgans to the 3rd millennium once more. In the same volume, however, Prof. Tallgren, after signaling many surprisingly close agreements between the North Caucasian culture and that of the eastern Alps (Laibach, etc.), again maintains a low dating.

Other important papers deal with interglacial remains from Manchuria, the 'Kamenye baby' and the Estonian law on antiquities, a piece of legislation that might well be copied in this country. In each volume there is a very complete and useful summary of recent literature, particularly Russian. Clearly in the U.S.S.R. prehistory is, like other branches of intellectual life, advancing with great rapidity. If only for keeping us in touch with such developments ESA is to be welcomed and sought for.

V. GORDON CHILDE.

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DIE BRONZESCHNABELKANNEN. By P. JACOBSTHAL and A. LANGSDORFF.
Berlin. 1929. pp. 104 with map and 42 plates.

The bronze wine flagons with beaked spouts (*Schnabelkannen*) which form the subject of this sumptuous volume are among the most widely distributed objects of south European workmanship found in Iron Age contexts to the north of the Alps. They have come to light in Germany, France, Czecho-Slovakia, Austria and Belgium; in the Celtic Chieftains' graves (La Tène A) of the Middle Rhenish area they are particularly well represented, and they occur, though less frequently, in the rich chariot-burials of the Marne culture. South of the Alps they have been found in Italy and Switzerland. Although they have aroused much interest, it has fallen to Doctors Jacobsthal and Langsdorff to write the first exhaustive treatise concerning them. The association of these authors is a happy one: Dr Langsdorff is among the foremost of the younger prehistorians in Germany; while Dr Jacobsthal's distinguished contributions on classical archaeology have won for him a European reputation.

Apart from an excursus by Langsdorff on objects (now in Berlin and Brunswick Museums) from the Ticino and Mesocco valleys and an appendix giving a full list of the flagons, etc., the work falls into two main parts. The first, the work of Langsdorff, is a carefully compiled account of the contexts in which the different flagons occurred with ample references to the relevant literature. It contains (p. 37) some useful corrigenda to Déchelette's inventory in the last volume of his celebrated *Archéologie Celtique*, p. 1599 ff and to my map in *ANTIQUITY*, 1928, II, 438. Dr Langsdorff is to be congratulated on the thoroughness with which he has collected his information. The second part is by Jacobsthal: a detailed description and analysis of the flagons from a stylistic point of view—an admirable and to those not versed in classical archaeology quite an indispensable contribution.

Jacobsthal makes out a powerful case for the Etruscan origin of the beaked flagon. Perhaps the strongest evidence he advances in support of this view is the similarity between the engraved decoration on the necks of these vessels and the engraved ornamentation on Etruscan *bucchieri* of the sixth century B.C. The remarkable homogeneity of the beaked flagons leads him to believe that, with very few exceptions, they must have been made at one place, but this at present is not easy to determine precisely. Neugebauer has shown that the flagon from Schwarzenbach (Birkenfeld) was made at Vulci. But, in Jacobsthal's opinion, the place where the majority of these vessels originated was not situated in so central a region: the half-barbaric engravings on the neck of the flagon from Weisskirchen (Pfalz), so strangely in contrast with the almost Greek character of its plastic zoomorphic ornamentation, together with the completely foreign nature of the neck-engravings on the example from Arnsheim (Rhein-Hessen) point to their place of origin being located in some region 'which on the one hand had close affinities with Vulci and related workshops, and on the other where traditions survived from which the decoration on the Arnsheim flagon in particular was derived'. He suggests Picenum or Umbria. But is not the evidence of these two examples too slight to prove that the main centre of manufacture lay outside of Etruria proper? Is it possible that the neck-engravings of the above two specimens were added later and in a region other than their place of origin? I refer to Jacobsthal's remarks on the Halstatt character of the neck-engravings on the Arnsheim flagon (p. 52). And if not, is it not more likely that they came from workshops other than those in which the majority of flagons was made? Even Jacobsthal admits that some specimens did not originate in the main centre of

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manufacture (e.g. flagons nos. 116a and 117, not to mention the South Alpine and La Tène copies), although, apart from their neck-engravings, the vessels from Weisskirchen and Armsheim stand in closer relation to the main body of *Schnabelkannen* than any of these.

Among the barbaric copies of these southern flagons, those of the South Alpine area are of considerable interest. An analysis of the ornamental features on the latter, leads Jacobsthal to state that they were of the same date as their southern prototypes, and reveal no motifs later than the fifth century B.C. (see p. 57). Ignoring flagons 35, 82, 127-9, since nothing is known of the contexts in which they were found, the *Schnabelkannen* from the Ticino valley fall into two groups: according to Jacobsthal, six examples are Etruscan imports, four South Alpine copies. Of the first group, two (nos. 8 and 39) were found in graves whose furniture contained, among other objects, antiquities dating from La Tène B (c. 400-300 B.C.); the rest occur in contexts of an apparently Hallstatt D character. Of the copies, only one (no. 123) was found in a grave of a Hallstatt facies. With no. 124 were associated two advanced La Tène B fibulae (see p. 19); while no. 126, the most barbaric of these copies, was found with objects dating from the second and first centuries B.C., but the account of the excavation of this grave is thought to be unreliable. I know of no other region in which beaked flagons occur in contexts that can with certainty be assigned to so late a date as the above examples from the Ticino area. Apart from this, the chronology of the South Alpine cemeteries is notoriously obscure: types of a Late Hallstatt (D) character are often associated with objects dating from subsequent periods, and the same applies to objects which elsewhere might be confidently assigned to La Tène B. So that it is practically impossible to say if graves of a Hallstatt D or La Tène B facies actually date from those phases and not later. This renders the dating from a purely stylistic view of any object found in this area extremely hazardous. Dr Jacobsthal thinks it possible that La Tène influences may be traced in the ornamentation of certain of the South Alpine copies. Were this to be established, it would mean that the flagons in question were assuredly later than the fifth century, since there is neither archaeological nor historical evidence to show that the La Tène culture existed in that region prior to the beginning of the fourth century B.C., the civilization of La Tène A being unrepresented there.

Dr Jacobsthal holds that the trade between the North and the South passed over the Great St. Bernard; like other Alpine passes of over 2000 metres, the Great St. Bernard suffered from the Sub-Atlantic climate crash: little is found from the later Hallstatt and earlier La Tène phases to show it was much used in those times—nearly all the objects found at Mont Joux date from the later La Tène and Roman periods. Evidence of Etruscan influence in that part of Switzerland is exceedingly slight. The West Alpine area (see *ANTIQUITY*, 1929, III, 38) was a phenomenally conservative district. Von Duhn (*Neue Heidelberger Jahrbücher*, 1891, p. 79) observes that there are no grounds for believing the Great St. Bernard to have played any part in the transmission of Etruscan and Greek objects to the North. No bronze beaked flagons have as yet occurred in the region of that pass. Indeed, apart from the Ticino and Mesocco valleys, not a single *Schnabelkanne* has come to light in Switzerland or in Southern Germany south of a line from Hagenau to Ulm. In the opinion of the reviewer, allowing that the beaked flagons were of Etruscan workmanship, there are fewer objections to their having been shipped to Massilia and thence reaching the Celtic area. That a trade existed between the last-named area and Massilia is proved by the finds at Camp de Château (Jura). The arguments in favour of this view are too lengthy to be given here and the reader is referred

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to ANTIQUITY, 1928, II, 432ff, especially p. 439ff, where the connexions between Italy and Massilia are also discussed. The fact that no flagons have been found in the Middle Rhône region cannot as yet be advanced against those travelling by this route: unlike northern Switzerland and southernmost Germany, this area has never been systematically excavated. It should be noted that the presence of beaked flagons as far west as the Department of Cher and in the Puy de Dôme region lends weight to the view that Etruscan objects were being exported to the Celtic and adjacent barbaric regions via the South of France rather than by the Alpine passes. Finally, as we have seen, the presence of such objects in the Ticino and Mesocco valleys cannot be advanced in support of the Alpine argument, until the crooked chronological ways of the South Alpine cemeteries have finally been made straight.

The occurrence of flagons at Riva and Martignano would rather lead one to infer that the five *Schnabelkannen* from Austria and Czecho-Slovakia reached those countries by way of the ancient Adige-Brenner-Inn-Elbe route. But unfortunately nothing is known of the circumstances of the above two finds.

One cannot but regret that Dr Jacobsthal had not the chance of personally examining the remarkable finds from Bouzonville (Moselle) recently acquired by the British Museum (see p. 99). The Scythian character of certain zoomorphic elements on the two flagons is striking. But even if the existence of Scythian influence upon Early La Tène art were established, that influence could only be of secondary importance. Contact between Celt and Scythian in Silesia can hardly ultimately account for the Scythic elements on these flagons, the Celts not reaching that region before *circa* 400 B.C. (La Tène a), while the vessels in question are assuredly not later than the fifth century. It will be interesting to read what this distinguished scholar has to say on this point.

In venturing the above criticisms, the reviewer does not wish to belittle this great work in the eyes of the layman. To the expert, there is no danger of this: the book is, and is likely to remain, the turning-point in the study of these important vessels.

J. M. de NAVARRO.

THE EXPLORATIONS IN THE TYROPOEON VALLEY, JERUSALEM 1927.

By J. W. CROWFOOT, C.B.E., M.A., and G. M. FITZGERALD, M.A. Published by order of the Palestine Exploration Fund Committee and sold at the Office of the Fund, 2 Hyde Street, Manchester Square, W. 1. 1929.

This is the second of the 'Annuals' devoted to the topography of the Hill of Ophel and the Tyropoeon Valley, and while it does not finally dispose of all the problems relating to its subject it is manifest that the volume carries forward clearly and effectively the process of dispersing the cloud of mystery and the mass of controversy which have hung for ages round the earliest chapters of the origin of civilization at and around what is now comprehensively known as Jerusalem.

One outstanding question has been definitely settled by the excavations described in the present volume and its immediate precursor, viz., the site of the Jebusite fortress which later became the 'City of David' and 'Mount Zion'. Whatever remains or outposts may yet be discovered northward of Ophel, or on the western hill, it is now established that the passages in the Books of Kings and Chronicles relative to the Hebrew Conquest refer to the city which has been disclosed by these excavations.

The great trench which the explorers dug from the ridge of Ophel westwards into the Tyropoeon Valley revealed in its lower stages the massive walls, including a gateway,

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which belonged to the western defences of the Jebusite stronghold which King David captured somewhere about 1000 B.C. Already considerable remains of the Jebusite defences had been found on the eastern slope of Ophel, facing the Kedron Valley, near the southeastern angle of the Temple Area, and again immediately overlooking the Virgin's Well. The lowest rock level reached in the great trench in the Tyropoeon Valley and in front of the great gateway, was a little over fifty-eight feet below the present ground level, indicating the extent to which, at this point, the valley has been filled up by the rubbish accumulated in successive demolitions and re-buildings on the site. The picturesque Old Testament incidents which gather round the Virgin's Well, indicate the profound interest which attaches to almost every chapter of research in Palestine.

The story of palaeolithic and neolithic Palestine has yet to be written, but memoirs like the one before us illustrate the methods and processes by which some of the great blanks in the reconstruction of ancient historical civilization are being filled up in our own day.

The limits of this notice forbid any description of the Byzantine Street lying some twenty-five feet above the base of the old Jebusite walls, or of the house in the lowest level in the middle of the Tyropoeon Valley in front of the western gateway, or of a score of other interesting items down to the roof-tile bearing the stamp of the xth Roman legion. The photographs, plans, sections, and drawings of the various 'finds' and their classification are excellent, and of the utmost value both to the student and the general reader.

The generosity of Sir Charles Marston, the happy and useful relations which subsist between the official archaeological authorities in Jerusalem, and the skill and efficiency of the actual explorers on the spot, are all points which emerge at various stages in these records, to the gratification of all those who are interested in the revelation of the archaeological secrets of the Holy Land.

THOS. HARRISON.

DIE PFAHLBAUTEN DES BIELERSEES. By TH. ISCHER. *Biel (Verlag des Heimatkundekommission Seeland)*. 1928. pp. 240 and 20 plates. 10s.

Dr Ischer's little book on the pile-dwellings of the Lake of Biemme does really give a lively and illuminating account of the life and work of prehistoric times that is applicable to a much larger sphere than that indicated in the title. The author combines with his exhaustive knowledge of the rich remains so miraculously preserved by lacustrine mud the fruits of extensive reading in anthropological literature and of prolonged personal study in ethnographic museums, as well as of the habits of the local peasantry. His clear figures and descriptions of the relics, supplemented by apt and beautifully illustrated parallels from among modern savages, bring home vividly to the reader how prehistoric man made and used things. Thus flint-flaking is illustrated by figures of Bushmen and Esquimaux at work, the use of the bow-drill from Egyptian paintings and photographs taken in the South Seas, the spindle by a peasant from Valais. So the book not only revives our interest in the Lake-dwellings—a subject whose value is apt today to be overlooked on account of its strong Victorian flavour—but is immediately helpful in quite different problems.

Dr Ischer's field is narrower than that of Reinert (reviewed in *ANTIQUITY*, 1927, I, 380) and he makes no attempt at a detailed grouping such as was attempted by his German colleague. At the same time he treats of the material more fully and includes the Bronze Age in his survey. Quite apart from the general stimulation provided by

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his treatment, a number of new or forgotten details came to my notice. I may instance the yoke from Vinelz, a wooden spear-thrower which Ischer's ethnographic knowledge enabled him to recognize, the amber beads from Sutz, horn 'sun-discs' quite like our gold ones, and square-barbed arrow-heads (also a bracer) again recalling British types. It is interesting to recall that there was a distinct industrial quarter in the Bronze Age pile-village of Möriegen such as has recently been recognized in prehistoric villages in southern England and the Orkneys. Dr Ischer has further some pertinent remarks to make on the limits of the stratigraphical method as applied to lake-dwellings on a shifting strand line. Altogether this is a valuable book. It is a pity it is printed in Gothic type. Indeed it would be well worth translating.

V. GORDON CHILDE.

LIFE AND WORK IN PREHISTORIC TIMES. By G. RENARD. *Kegan Paul (History of Civilization).* pp. viii, 228, with 24 illus. 1929. 12s 6d.

It is one of the many merits of the great series on the History of Civilization that it makes available to English readers the work of their foreign contemporaries. Yet to succeed here, the authors of a general work like that before us ought to have sufficient breadth of vision to throw light on problems that confront us in the British Isles and to take account of authors, even British authors, who are not their compatriots. In this respect at least Professor Renard fails badly. Stonehenge is classed with 'the cromlechs of Morbihan and the Deccan' as a neolithic burying-place! (p. 28). In discussing dwellings nothing is said about beehive huts and the type of stone architecture they involve, nor is any reference made to the survivals of the type described by Mitchell and others. The foot-plough and its survivals are equally ignored. Of the many British authors who have made signal contributions to the illumination of prehistoric darkness by modern ethnographic parallels only 'Lubbock' and Haddon are even mentioned perfunctorily; the work of Tylor, Pitt-Rivers, Gowland and Mitchell, to say nothing of their more recent successors, is evidently quite unknown to the author.

Partly as a consequence of this defect many serious inaccuracies disfigure his accounts of technical processes. On pottery we read (p. 68) 'the black (vessels) were baked in the open air, the red by firing inside the house'. The very exiguous account of primitive metallurgy given on p. 70, while failing completely to give an impression of the romance of the craft, bristles with inaccuracies or obscurities: for instance the author ignores the fact that the crucible was at first often if not always placed *under* the fire and describes the gouge as 'a sort of hollow which worked into the thick part of a flint chisel can hollow out a piece of wood' (! bad translation).

The archaeology is worse than the technology. Mesolithic is equated with Middle Palaeolithic; as type sites of the transitional period (our mesolithic) Campigny, Mas d'Azil, Fère-en-Tardenois and Gafsa are mentioned. But Kjökenmodings (*sic*) on the sea coast and the edge of the deserts are classed with dolmens and Stonehenge as Neolithic. From p. 125 we should infer that the sickle was invented after the plough. Page 72 states: 'In Western Europe the iron industry is of two types. The older is revealed to us by the excavations at Hallstatt in Bavaria, and seems related by its products to the products of Asia Minor on the coasts of the Black Sea which were carried westward by the Russian steppes and the Danube valley. The other, that of La Tène, a valley in the canton of Neuchâtel in Switzerland, derives on the contrary from the Mediterranean culture and came north by the Aegean Islands, Greece, and Italy'.

After citing this specimen of archaeological and geographical knowledge—to say

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nothing of literary style—it would be useless to proceed to enumerate the real merits of the book. We cannot refrain, however, from drawing attention to the illustrations, which seem to have been chosen in most cases without the least reference to the text. One whole plate is occupied by a *Pecten* shell; another represents atrociously what purports to be a Mousterian scraper. Others depict the 'death of Captain Cook', a reconstructed 'dolmen' at St. Germain, a mammoth, and a rope bridge. All these seem quite irrelevant and should have been replaced by some of the excellent available representations of primitive, ancient or medieval pot-making, smelting, mining, ploughing, etc. Of the twenty four illustrations, indeed, exactly half are either quite irrelevant or at least unessential. The choice of good illustrations is often one of the most difficult, as well as most vital, tasks of authorship. In the subject here treated, however, any writer who knew the literature would be embarrassed only by the number of excellent and easily accessible figures at his disposal.

I for one feel the need of a book on prehistoric life illustrated by ethnographic parallels. But it must be written by an author familiar with both domains and in (or translated into) readable English. Then I am sure it would sell. The present book will not.

V. GORDON CHILDE.

THE SALISBURY AVON. By ERNEST WALLS. *With sketches in pencil by R. E. J. BUSH. Arrowsmith. 1929. pp. xii, 287, with 31 illustrations. 10s 6d.*

This is the second of Mr Walls' river books. In the first, 'The Bristol Avon', he followed the course of that stream from its source, through north and west Wiltshire and Somerset, and so to the sea at Avonmouth. In the present volume, he begins with the sea at Christchurch and journeys along the river banks by the New Forest and Fordingbridge to Salisbury and thence up the Avon Valley, turning aside to explore the tributary streams, the Wylye, the Nadder and the Ebbel, on the way, until he runs his river to earth at its source at Bourton in Bishops Cannings on the northern side of Pewsey Vale. The Wiltshire portion here dealt with occupies just twice the number of pages allotted to Hampshire. The Author does not set out to write an ordinary guide-book. Unless a church is something quite out of the common, he scarcely mentions it, and when he does he gives you an impression of it as a whole, rather than the details of its architecture. The places he likes to pause and muse upon are those which possess some historical or literary association, or, for he has distinctly an eye for prehistoric things, those which possess some special archaeological interest. Berwick St. John for instance, and Alvediston, are brought into the story chiefly for the sake of Dr Clay's discoveries in the pit-villages, and when he comes to Stonehenge he gives himself leave to treat the subject far more fully than he has treated any other portion of his journey. So far from being satisfied with the usual guide-book hash, he shows that he is really acquainted with the most recent literature on the subject, with the result that he has written what is exceedingly difficult to write, a really good popular account, which, without going too much into detail, does give a fairly accurate idea of the results of recent excavations, including the work at Woodhenge, and of the various theories as to the age and purpose of the monument which are favoured by present-day archaeologists. It would not be easy to find another essay on Stonehenge of equal length so charmingly written for the motorist or walker to read, and containing so little to criticize and so much to be thankful for. The chapter on Salisbury, again, as a whole, is excellent. Its history, the struggles of the citizens with the bishop, its most notable natives, the close, the cathedral, the

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palace and the churches, the things that every visitor ought to see, the fact that, as the author believes, it is the Barchester of Anthony Trollope's novels, and that Hiram's Hospital was St. Nicholas' Hospital at Harnham, are woven together to make admirable reading for the tourist who prefers a general view to the drier details of the ordinary guide. In this section, however, as Mr J. J. Hammond and others have pointed out, there are certain slips. The tournament ground was not at Old Sarum, but between Old Sarum and Wilton. The Mompessons did not live at Bathaston, near Bath, but at Bathampton in Wylke. 'Leyden Hall' should be Leadenhall, 'Nicholas Hyde' of Dinton should be Henry, and it was William, not John, Swayne who carried on the famous dispute with John Halle. But these are small blemishes that do not affect the remarkably pleasant taste of the book as a whole. Those who do not know the basin of the Avon in Wiltshire and Hampshire already, and who are moved to explore it in a leisurely way, can hardly have a better introduction to that delightful country than this book supplies.

E. H. GODDARD.

THE NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY. Report for 1928-1929. pp. iv, 131, 7 plates, 4 maps.

To quote the words of the Report, 'the year 1928-1929 has been an *annus mirabilis* in the history of the National Trust. Not only have some of the properties acquired been among the most important ever handed over to the Trust, but the number of annual subscribers, for the first time in the Trust's history, reached a total of over 1000'. The latter may be a cause for congratulation to the Trust, but it is a sorry indication of the aesthetic tastes of a nation favoured with so many places worthy of permanent preservation. However it is refreshing to learn that this year less litter has been left behind to mark the lunching sites of tourists.

The Trust is becoming the possessor of places of archaeological interest, and therefore archaeology should be more adequately represented on its councils. Furthermore the funds accruing from the ownership of places of archaeological interest, such as the White Barrow or the land round Stonehenge, should not be engulfed in the common fund, but should go to form the nucleus of a fund for purchasing and preserving other sites of archaeological interest. In short there should be an archaeological branch of the Trust with its own central committee with separate subcommittees for individual sites and its own special fund. When the subcommittee is formed for the land round Stonehenge (there is no mention of such a committee in the Report) it is hoped that the majority of its members will be local archaeologists who have the time and the qualifications, and surveyors who know the local conditions of farming on the chalk. The Trust, out of small beginnings, has grown to be a great landlord with high responsibilities, and if it is to continue to act with efficiency it must adapt itself to new conditions. R. C. C. CLAY.

GREEK AND ROMAN BRONZES. By WINIFRED LAMB, M.A., with 96 plates and 37 illustrations in the text. Methuen. 1929. pp. xxiii, 261. 25s.

This is a vivid and excellent history: it covers indeed a wider field than the name indicates, for it includes important sections on special periods of Etruscan bronzes. The writer brings to this study, not only scholarship and considerable knowledge of history, literature and art, but a sensitive appreciation of every side of Greek life—its people, its countryside, its religion and social institutions; above all, its festivals, which are so largely responsible for the wealth of objects made in bronze, which are fully discussed.

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The illustrations are admirably chosen. There is little controversial matter in the book so criticism is difficult. There must be omissions: the limited space cannot allow of much discussion on foreign influences and technical methods.

It is especially in the earlier chapters, which deal with the primitive and developing art of the Bronze Age and of the Iron Age, that Miss Lamb shows her specialist knowledge: there are valuable sections on the technique and style of Cretan bronze-work; on the important classes of tripods—their shapes and criteria for dating; on the Cretan 'shields'—Greek or Phoenician? For the rest, while Arcadia must welcome the return to her art of the charming country-side bronzes, which Langlotz had given mostly to Argos or Sicyon, the archaistic lady in the British Museum and the Hermes in Boston would rather have other company.

E. R. PRICE.

LA BELGIQUE ANCIENNE, CATALOGUE DESCRIPTIF ET RAISONNÉ
(Musées Royaux du Cinquantenaire à Bruxelles). Par **BARON DE LOÛ**, *conservateur honoraire*. 1. Les Ages de la Pierre. *Vromant et Cie*. 3, Rue de la Chapelle, Bruxelles. 1928.

Baron de Loû, for 30 years Conservateur of the Cinquantenaire Museum, before his retirement in 1925 rendered one more service to the cause of Belgian archaeology by preparing this catalogue of the collections so long under his care 'qui sera bientôt un classique de l'archéologie nationale'.

This volume is admirably adapted not only to serve as a guide to the collections but also as a comprehensive introduction to the prehistory of Belgium. In *Notions Préliminaires* (pages 7 to 14) will be found a short but clear introduction to the classification of the geological epochs and of the prehistoric periods. This section concludes with some cautious remarks on the question of eoliths. The suggestion that eoliths may be the work of beings intermediate between man and the higher apes seems rather a way of avoiding than helping to solve the problems they present.

Pages 15 to 29 are occupied by a more detailed description of the palaeolithic periods, followed by a short description of the finds and of the various sites represented in the collections. The remainder of the volume treats of the neolithic period in a manner similar to that used for the palaeolithic. An introductory general review of the period (pages 89-105) including sections on industries, habitations, burial customs, megalithic monuments, etc., is followed by descriptions of finds and sites represented in the collections (pages 106-250). There are numerous good illustrations in the text, and both paper and printing are excellent. There is also an index. M.E. CUNNINGTON.

VINGT-CINQ ANNÉES DE RECHERCHES, DE RESTAURATIONS ET DE RECONSTITUTIONS. Par **E. RAHIR**, *Directeur du Service de Fouilles*, Musées Royaux du Cinquantenaire, Service des Fouilles de l'État. Bruxelles. 1928.

Belgium is fortunate in having a system by which discoveries of historic or of prehistoric interest are brought to the notice of the authorities concerned. It is known as the 'Service des Fouilles'; it was instituted in 1903 with the modest grant from public funds of a sum not to exceed 2000 francs a year. This volume is published to celebrate 25 years of accomplishment of which its members may well be proud. The officials of the 'Service' are in touch with the National Museum, and it is their duty on

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hearing of some discovery to visit the site and to take such steps as may be necessary for preservation and investigation.*

This volume, in addition to a short introduction, consists of a list in alphabetical order of finds and sites investigated by the 'Service des Fouilles' from the beginning of its activities. These range from palaeolithic times down to the middle ages, and are of course of varying importance, including some finds of even single coins. Some of the more interesting finds and sites are illustrated and there is a map of the region marking sites. To those interested in the early history of the country the volume will be indispensable. There appears to be one rather serious omission. There are no references given to publications in which more detailed accounts of the discoveries are recorded.

There are several points of interest in connexion with our own archaeological problems. On page 106 a 'mardelle' is thus described:—'*La mardelle est une dépression circulaire remplie d'eau et qui est entourée d'un bourrelet surélevé en terre*'. This description and the illustration of the 'mardelle' recall the pond-like circular hollows with low banks round them occasionally met with on our chalk downs called by Hoare 'pond barrows' (*Ancient Wilts*, 1, 22). Some at least of the Belgian 'mardelles' hold water and some are larger than any 'pond barrow' known to the writer, but the former depends on the nature of the sub-soil, and chalk would not hold water unless puddled as in dew ponds. Have any of our 'pond barrows' been examined with a view to seeing if there is any trace of former puddling? If such were found it would solve the question of their use, and probably that of the 'mardelles' as well; at present the Belgians frankly admit that their purpose and origin are quite unknown.

Fig. 115 shows a perforated brick from an Early Iron Age site at La Panne, apparently similar to some that have been found in this country, notably at Wallington Camp near Croydon, which have not been satisfactorily explained. It is here shown that they served to support vessels during baking in conjunction with other objects of pottery shaped rather like large nails, pointed at one end and flattened at the other, the pointed ends fitting into the holes in the brick and the flat heads supporting the vessel. The dozen or so holes in the brick allowed for as many supports as were required and in the most convenient positions, the object being to keep the vessel as free as possible from contact while in the kiln.

A antler-comb of neolithic date from Spiennes (fig. 99) recalls those from the early sites on Windmill Hill near Avebury illustrated on plate III at page 40 of this number of *ANTIQUITY*, and from Abingdon, Berks., rather than the more familiar forms from Early Iron Age sites in this country. From the same site what is described as a '*lisseur néolithique*', made from a rib bone, is the counterpart of many implements found on the Early Iron Age site at All Cannings Cross. There is an interesting account of the forgeries at Spiennes, consisting of chalk axes, figurines, etc. (pages 237-240).

M. E. CUNNINGTON.

DIE WEHRANLAGEN NORDALBINGIENS; Zusammenstellung und Untersuchung der urgeschichtlichen und geschichtlichen Burgen und Befestigungen. Von HERMANN HOFMEISTER. Herausgegeben vom Verein für Lüneburger Geschichte und Altertumskunde. Heft 2, 1927. Rentenmarks 16.

This may be described as a 'catalogue raisonné' of the defensive earthworks within the area that lies between the lower course of the river Elbe and the Baltic, including

* Why have we no such Service in Great Britain? Because —. —EDITOR.

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Schleswig Holstein, the old dukedom of Lauenburg, the old principality of Lübeck-Eutin, and the free Hanseatic states of Lübeck and Lauenburg. It is claimed that the region represents a geological and cultural unity.

The first volume appeared in 1917 and dealt with the old state of Lübeck; the present one is concerned with the old principality of Ratzburg and the dukedom of Lauenburg. The sites are classified as Wendish and Saxon strongholds (Ringwälle), early castles (Burgen), fortified homesteads (Gutshöfe), defensive town works and later castles (Schlosser), and defensive works of various kinds. The sites are arranged in alphabetical order, and are illustrated in the text by sketch maps showing their surroundings, and every site of any importance is shown by a large scale plan at the end of the volume.

None of the works are what we should call prehistoric. The earliest appear to be Wendish strongholds occupied up to the time of the German invasion under Henry the Lion in the 12th century A.D., but how much earlier some of them were formed is not known. It is interesting to find that these strongholds described as Wendish are counterparts of what in Britain we call 'motte' or castle mounds. They do not seem to be much if at all earlier than similar sites in England. At Ratzburg, for instance, a Wendish prince named Ratibor, who gave his name to the place, was living there in 1043, but whether he actually erected the mound is not known. If these dates could be ascertained with some degree of certainty it might help to settle the question as to where and by whom this type of defensive dwelling, or stronghold, originated. Formerly the English mottes were ascribed to the Saxons, but though the area under consideration comes into the region from whence these tribes came, these strongholds in this region seem too late to have influenced our Saxon invaders. It would be interesting to know if mounds of this type are found in the country lying between our region and Normandy, from whence it is fairly certain the type of earthwork was brought to England by the Normans. As in many English examples, the mounds have raised banks round the outer edge, which no doubt originally supported stockades, giving the mound a somewhat saucer-shaped sectional profile. Some of the early mounds described had solid causeways leading to the entrances instead of wooden bridges across the ditch. As far as the reviewer knows this feature is not met with on English sites, and it seems probable that it is an earlier form of entrance, recalling as it does the causeways into prehistoric earthworks. Some of the mounds seem also to have been without adjoining enclosures, or 'bailey courts'. This is also the case in some English examples and is generally considered to indicate an early date.

As the writer in his introduction to the first volume says, only by regional surveys of earthworks can their distribution become known, and thus help to identify the various types with different peoples; this should also assist in solving problems of migrations and settlements.

As late as 1350 an earthwork was made forming a defensive boundary (*landwehr*), which though not so long compares with some of our own dykes such as Offa's Dyke and Wansdyke. It ran from Ratzburg See to the Möllner See, a distance of about five miles. The bank had a ditch on both sides. The cost of the construction and maintenance of the defence was borne by the towns of Lübeck and Mölln, and the Duke of Lauenburg. In 1369 the Duke of Mecklenburg, perhaps to show his annoyance at, and contempt for the work, broke through the defences on a marauding expedition (*als Strassenrauber*) cutting the timbers and doing great damage; he and his followers then quartered themselves on the inhabitants of the town of Mölln much to their loss and discomfort. From this account it appears that the dyke was stockaded.

M. E. CUNNINGTON.

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GRAFHEUVELS IN OOSTERWOLDE, OPGRAVINGEN IN 1928. Door DR A. E. VAN GIFFEN. (*Overdruk uit de vrije fries deel, XXIX*).

Dr Van Giffen, continuing his researches in Holland, describes six burial mounds opened in 1928. (See ANTIQUITY, December 1928, page 492).

The first three circular mounds near Langedijk are described as 'neolithic'. No. 1 had a narrow trench or ditch round it but neither of the other mounds was ditched. Inside this ditch were a number of post-holes forming an irregular circle; at the centre the primary burial was found in a grave with a beaker and some flint flakes.

In no. 2 the remains of a burial was found on ground level, with a fine perforated axe of diorite of Jutish type, and some flint flakes. Immediately enclosing the burial were traces of wood that the excavator believed to represent the remains of a wooden cist that had been erected over it. Near the centre of no. 3 a grave was found containing a beaker and an axe of gneiss, three 'semi-microliths' of flint and an 'arrowhead' that looks like a long narrow flint flake. The beaker is remarkable as having a roll or raised band just below the lip, the band having a row of herring-bone pattern impressed on it; the vessel appears to be without other ornament and is described as a variant of the so-called 'schrägstrich-zonenbecher'. The other three mounds are assigned to the Bronze Age; none was ditched round. The two near Fochteloo presented no features of interest, but the third (de Knol) had three rings of post-holes forming irregular circles just within the edge of the mound; the holes were placed very close together, those of the inner ring being much smaller than those of the two outer ones. On the ground level at the centre a cremated burial was found without associated objects.

The plans and sections are excellent but the illustrations of the objects have been too much reduced to be at all clear. M. E. CUNNINGTON.

HISTORY OF THE VEGETATION OF THE SOUTHERN PENNINES. By T. W. WOODHEAD. The Tolson Memorial Museum Publications Handbook v. (Repr. from *Journal of Ecology*, vol. 17, no. 1, Feb. 1929). Cambridge University Press. 1929.

Whatever may have happened in the south of England, there can be no doubt that the history of the vegetation in the Pennines begins no earlier than the Ice Age, at the climax of which the greater part of northern England was ice-covered. There were considerable unglaciated nunataks on the higher ground, but the climate must have been of great severity and the vegetation, if any, high arctic, though no remains have been preserved.

Then followed a very long inter-glacial, much longer than the whole of post-glacial time, and no doubt the country was occupied by a temperate flora, but this again has left no records. This flora may not have been entirely exterminated by the last glaciation, which left very large areas free of ice, but it is not until the final retreat of this ice sheet that the real history of the Pennine flora begins. This history is closely bound up with the fluctuations of climate, which have been most fully studied in Scandinavia, where a number of independent lines of evidence all lead to similar conclusions. These conclusions do not necessarily apply to the British Isles, however, and hence the great value of detailed studies such as this.

In the Pennines the records are almost entirely enshrined in the peat bogs and underlying deposits, for the view that the peat is post-Roman is no longer tenable; but no peat deposits belonging to the late glacial are known, presumably owing to the absence

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of conditions suitable to their formation. In the dry Boreal period forests of birch spread over the Pennines, with some hazel, oak and alder, and later, pine and elm. The constitution of the forests at different times has been determined by the study of pollen statistics, carried out with great enthusiasm by G. Erdtman in the British Isles. The horizons are determined by the discovery of Tardenois implements, the condition of which suggests that towards the close of the period the rainfall increased. At the close of the Boreal period the forests disappeared, but it is pointed out that the destruction of the forests is not by itself sufficient evidence for a change of climate, as the same result could be brought about by a leaching of the soil. In fact the forests never succeeded in re-establishing themselves, and hence in this area there is no evidence for a dry sub-Boreal period except a temporary dominance of heath plants.

Dr Woodhead allows it to be inferred that since boreal times the changes of climate in England have been slight. It must be remembered however that the Southern Pennines form only one local area. The lack of evidence as to climatic changes applies only to that area; it is not evidence against a general change of climate over the whole country, but merely one additional fact to be fitted into a general scheme. The way in which it does fit in, and very neatly, was shown in *ANTIQUITY*, 1927, 1, 412-18. If only we had a few more studies as thorough as this for well distributed parts of the British Isles it would be possible to write the history of our climate with much greater confidence than we can at present.

C. E. P. BROOKS.

A HANDBOOK OF GREEK AND ROMAN ARCHITECTURE. By D. S. ROBERTSON, M.A. *Cambridge University Press*. 1929. pp. xii, 406. 25s.

The aim of this book is given by the Author as 'to state, briefly but clearly, the main facts of the history of Greek, Etruscan and Roman architecture, from the earliest times to the foundation of Constantinople, so far as they are at present known'. This is a large task, and no one could be better qualified to fulfil it than the Regius Professor of Greek at Cambridge. Seldom can more knowledge have been packed into four hundred pages.

The method followed has been, in the main, to describe, for each style or period, the best preserved and most thoroughly studied buildings, and so to deduce the general principles which governed their construction. The descriptions are given in great detail, and with much technical information. To the student of any subject nothing is so satisfactory as to be given the facts, from which he can, if he wishes, form his own conclusions: or, at any rate, comprehend the reasons for the conclusions presented to him. But the general reader, or those who are at the beginning of the study of classical architecture, would have benefited very much if more generalized accounts of the main types of classical buildings had been presented before the detailed construction of individual buildings was dealt with. Also, in spite of the excellent glossary of technical terms to be found at the end of the volume, illustrations with the different features to be explained pointed out on them, as well as a general explanation of the terms used, would have been a help in the elucidation of what is, after all, a complicated science, differing from many sciences because of its appeal to the unlearned as well as to the specialist.

The historical method followed in this book enormously increases its value; and the surprising degree to which classical architecture has permeated our own cities and homes makes it of wide interest to learn the origin, for example, of a Corinthian capital, or even of the double-s console which supported so many a Victorian marble mantelpiece.

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Where the Author allows himself to generalize he is most interesting, and the chapter on Roman construction, illustrated by arches, vaults and domes, is fascinating reading. To the student of the Classics and classical history and architecture this work will be a treasure-house. Its value is enhanced by appendices giving a tabulated description of the chief classical buildings not dealt with in detail in the text, and by a long bibliography as well as the glossary. The illustrations are beyond praise, both drawings and photographs; and the book in its general appearance and absence of misprints is another ornament to the Cambridge Press.

DINA PORTWAY DOBSON.

A CENTURY OF EXPLORATION AT NINEVEH. By R. CAMPBELL THOMPSON and R. W. HUTCHINSON. *Luzac and Co.* 1929. pp. 146. 7s. 6d.

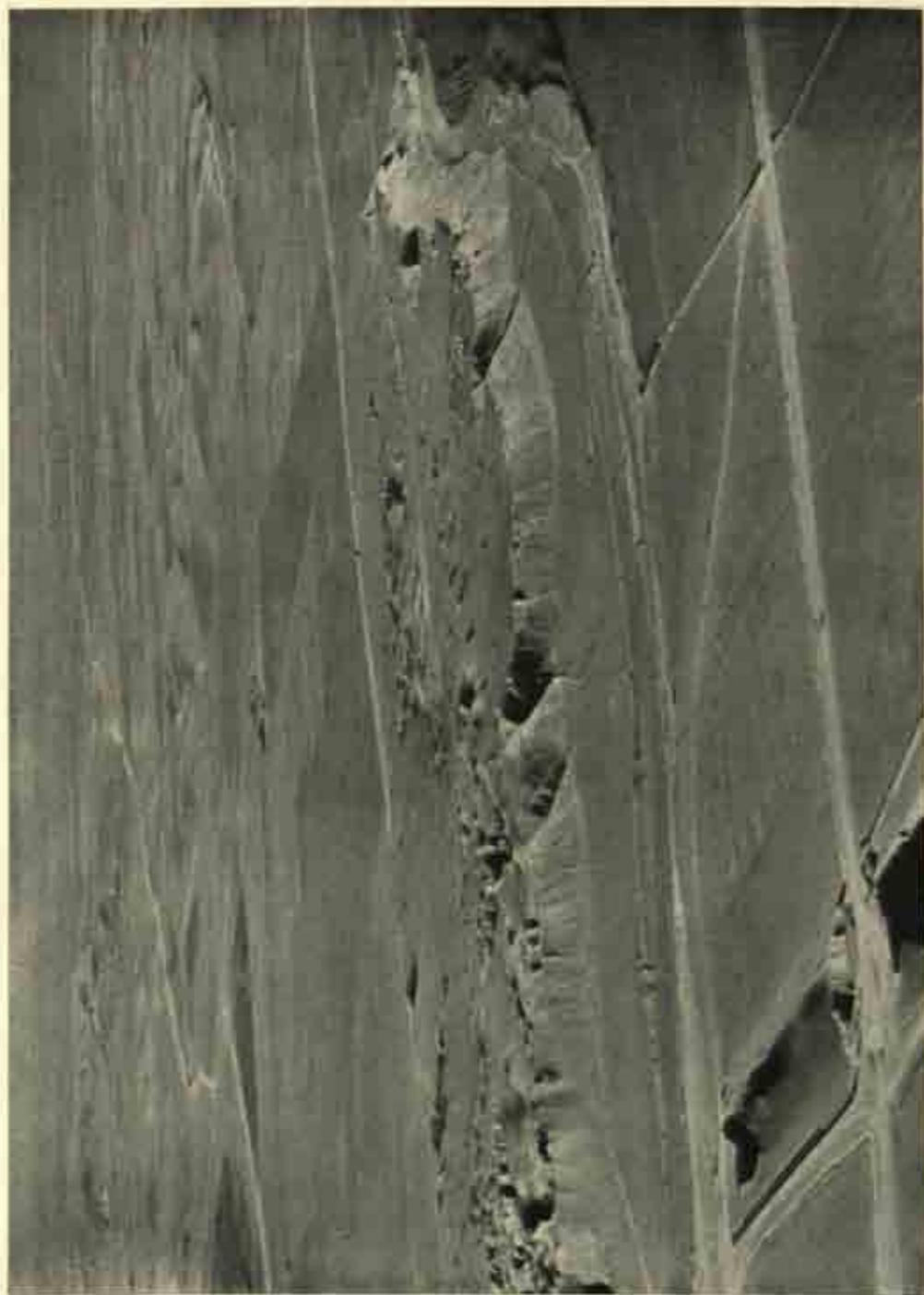
This useful if somewhat ill-arranged little book contains a digest of what is known about Nineveh. Such a compilation is opportune in view of the resumption of excavation there by the authors on perhaps quite a large scale.

The following are some points of interest mentioned. The mound of Nineveh (Kouyunjik) contains 14½ million tons of earth, which it would take a thousand men 124 years to shift (preface). On page 15 is a useful list of the chief ancient sites of Mesopotamia with their modern names. 'The deepest level to which King dug (in 1903) was 68 feet, where in dark earth were found Obsidian knives' (p. 63). 'The cuneiform sign [for Nineveh] has long been recognized as a fish in a tank, and this, of course, led to the explanation of the story of Jonah, that Nineveh was the fish that swallowed him' (p. 113).

A good proportion of space is devoted to the modern conditions of Assyria, which not only gives interest to the narrative, but forms in itself a valuable scientific record. There are numerous plans, but we hope that, when the time comes for a more ambitious publication, it will contain certain things which, if only for reasons of format, could not well have been included in a book like this. First we need a detailed topographical map of Nineveh and its outer walls. Such could easily be compiled from an air-photograph mosaic, with a few trigonometrical points established on the ground as a framework. There is an R.A.F. station almost on the spot, at Mosul, and there would, we feel sure, be no difficulty whatever in getting the required photographs taken. Then we need a plan of the mound itself, like plan 2 but showing the remains of different periods in colour. Finally a few air-photographs, oblique and vertical, of the mound and its environs would give one a better idea, perhaps, of their character than the very poorly reproduced half-tones in this book. Finally, we wonder whether the area within the outer walls, which is now under cultivation, might not yield interesting results if photographed from the air when the corn (if such is planted) is at the right stage of growth? Conditions there may of course preclude this; but in view of discoveries of the plans of towns and such like made in England by this method the experiment would at any rate be worth trying.

WOODHENGE. By M. E. CUNNINGTON (MRS B. H. CUNNINGTON). *Devises: G. Simpson and Co.* 1929. pp. 184, with 57 plates. 25s.

This book, by the gifted author of the monograph on the Early Iron Age settlement at All Cannings, Wiltshire, tells of the excavation of this remarkable monument and some adjacent circles in the summers of 1926-1928. A notice of the discovery from the air



THE MOUND OF NINEVEH FROM THE NORTHEAST
IN FOREGROUND PART OF THE GREAT WALL; IN FRONT OF THE MOUND THE BED OF THE RIVER KHOSR
By permission of the Air Council, Crown copyright reserved

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and of the first season's work appeared in *ANTIQUITY*, March 1927, and need not be here repeated from the amplification in the book. The detailed features of the structure are presented clearly by two excellent maps, plans of a hypothetical restoration, photographs and admirable line-drawings (the air-photograph frontispiece is unfortunately printed upside down). The material aspect of the monument is well rendered by these and the letterpress, and very little criticism is here called for. A first impression, however, gathered on the spot and from the maps—often truer than one drawn from over-erudite study—suggests that the interior ovals are not intentional but are clumsily formed circles. The maps seem to show a progressive deterioration inwards from the fairly drawn outer circle which would necessarily be the first laid out for delimitation of the whole area, notwithstanding the elaborate reasons to the contrary filling pp. 15-17, which protest too much to be convincing.

Twenty-seven pages are given to the pottery, with the same number of plates of full-size figures of all the important sherds found on the site. This section is well done and valuable. But it is to be regretted that in the list of those who have reported on the classified objects no name is given of any recognized pottery-expert. That independent opinions by the best authorities are called for is evident from the fact that in the paper read before the British Association in 1927 the Woodhenge pottery was judged to 'clearly belong to the end of the Bronze Age if not actually contemporary with the first use of iron', while on p. 132 of the present book Woodhenge is assigned to the *Early Bronze Age* by reason of pottery unearthed.

If the section on 'The pottery and its bearing on the date of construction', pp. 25-28, is inconclusive, this may be said with equal force of the whole of the speculative part of the book. This, was indeed, unavoidable, and it may be questioned whether it would not, for the time being, have been wiser to record the physical facts of the discovery and refrain from theorizing until the examination of other disc-barrows, hitherto so-called, provides a sounder basis. Even now another seeming Woodhenge has been observed from the air (p. 184, and *ANTIQUITY*, September, 1929), and possible indications exist of yet more.

Besides four pages allotted to it, pp. 18-21, there runs through much of the volume as its main thesis, a comparison of Woodhenge with Stonehenge, with the deduction that Stonehenge is a copy in stone of the timber monument. This contention, made plausible to an unwary reader by laboured special pleading, is rendered ineffectual *in limine* by the equal probability, urged by the President of the Anthropological Institute in 1927, that Woodhenge is a debased copy of Stonehenge. The curious answer then made, that if Woodhenge was already standing what need could there be of an inferior copy, is readily met by the consideration that man has always been an imitative animal. Why, since the Portland vase itself was in being, did Wedgwood make copies? Much is made of the fact that the dimensions of Stonehenge are just double those of Woodhenge. But if an adjacent tribe wanted a local mausoleum or sanctuary, what more natural than to make a half-size copy, in a handier material, of the greater example?

That present inferences can be only tentative is shown by the differing judgments on the purpose of this erection passed in the former paper and in the book. In 1927 the absence of any central burial in Woodhenge, except the unimportant one of a young child, was taken to imply the non-sepulchral character of both it and its supposed derivative Stonehenge. Two years later other known timber structures, all certainly sepulchral, are quoted as possible analogues of Woodhenge. It is also now argued that the absence of burials within adjacent circles may be due to the destruction of

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mounds covering surface-burials. But this explanation must be equally applicable to Woodhenge itself.

To uphold the hypothesis that Stonehenge is an exalted copy of Woodhenge, it was clearly necessary to prove that the *whole* of Stonehenge was set up at one time without any reconstruction. Pages 28-31 are therefore devoted to an attempted proof that the Aubrey hole circle is coeval with the rest of the monument. An archaeological Athanasius *contra mundum* is impossible here. The consensus of the best authorities together with the recorded results of the late excavations are decisive against this unity in time. One of the few certainties of Stonehenge, that the ditch is earlier than the stone monument now extant, is reluctantly admitted, but it is also argued that it is earlier than the Aubrey holes. If so, it encircled a void and was purposeless, since it is not defensive. The ditch and Aubrey ring are in all probability inseparable in date, and represent the original and earliest structure, a ditch and rampart closely fringed with a ring of stones, in form and date agreeing with Arbor Low, the ring of Brogar in Stenness, &c., and assignable to 'the earliest Bronze Age at latest and more probably to the Neolithic' (ANTIQUITY, March 1929, p. 84).

Again, the Z ring of Stonehenge is said to represent the B ring of Woodhenge. But the Z holes are a later addition to Stonehenge, perhaps by many centuries, for stone 8 of the Sarsen circle had fallen before they were dug and interrupted their continuity (ANTIQUITY, March 1929, p. 80). The lay-out, too, of the Z ring is rudely irregular and cannot be an improved copy.

The Aubrey holes, 'judging from their shape and size' are thought to have held timber uprights. To the reviewer the same appearances make it improbable. Not even a savage with a flint tool would make a post-hole wider than deep to give himself extra labour in ramming. The Woodhenge posts were apparently of uniform diameter in the several rings. Stonehenge is *ex hypothesi* a more symmetrical imitation, but the Aubrey holes vary from 5 ft. 4 in. to 1 ft. 6 in. It is beyond the limits of this review to adduce several other valid objections.

The book would have suffered no loss by the omission of the strained demonstration of the orientation of Woodhenge which pervades so many of its pages. The orientation is said to be accepted 'because it is demonstrated by the facts'. The facts seem rather to be moulded to the determination to collate Woodhenge with Stonehenge. That the builders of Woodhenge painfully threaded a line through the narrow interstices of a crowd of posts, to issue not through the entrance, but askew across a bank which would delay the sun's appearance, is incredible to the present writer. He finds that by laying a straight-edge across the map he can draw three other equally plausible 'azimuths' which Sir Norman Lockyer might have claimed as purposely aimed at other objects celestial or terrestrial. The paper in *Archaeologia*, vol. 73, to which the author appeals is that which confirmed the present writer's total scepticism. He disbelieves in excellent company. 'Antiquaries have been led to waste much time and ink upon the supposed astronomical properties of these circles', (Wheeler, *Prehistoric and Roman Wales*, p. 106). 'I have no faith whatsoever in correlations between the orientation of rude stone monuments of any kind and astronomical phenomena nor in deductions therefrom', (Macalister, *Archaeology of Ireland*, p. 109). These unsubstantial speculations differ in degree rather than in kind from the Great Pyramid fantasy. GEORGE ENGLEHEART.

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Editorial Notes

GOVERNMENTS do not often make generous grants of money in aid of archaeological research. Such grants as are made, however, are usually criticized for their meanness rather than for their extravagance. The South African Government has recently distinguished itself by making a grant of no less than £5000 to Dr Frobenius, who has been touring in South Africa with a large staff copying wall-paintings and endeavouring to solve the age and origin of the Rhodesian ruins. We do not know the exact conditions of the grant or what return the Government stipulated for; we only know that the grant has been made, or authorized. For the rest our knowledge is derived from press-cuttings of South African papers and from private correspondence with persons acquainted with the facts.

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When we received the first press-cutting (from an American newspaper) we were incredulous. We recalled that Dr Frobenius had refused to accept the facts revealed by the British Association's excavations at Zimbabwe, both those of a quarter of a century ago (carried out by Dr Randall MacIver) and those of last year described by Miss Caton-Thompson in *ANTIQUITY*, December 1929. Both excavations were conducted most carefully and scientifically; the results of both were in agreement, and were the outcome of a number of observed facts capable of only a single interpretation—the recent age of the ruins. The wild suggestions put forward by irresponsible and unscientific theorists had been put out of court and the question of the age of Zimbabwe could be no longer regarded as an open one.

Those who refused to face these facts could no longer be taken

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seriously. For these reasons we hesitated to believe what the papers said and took steps to find out more. To our great surprise we found that report was correct.

Apparently this new 'Maecenas' (as the *Cape Argus* calls him in an excellent and witty leader of 25 February) is the Minister of the Interior, Dr Malan, to whom the good professor appears in the light of a 'sort of new Columbus', opening up a 'new world that we did not realize existed before'! The Minister has only himself to blame for his ignorance of South Africa's archaeological treasures. The rock-paintings were published in book form (*Bushman Paintings*) as long ago as 1909 by Miss Helen Tongue, and facsimile reproductions are also exhibited in the Cape Town museum.

The Editor of the *Cape Argus* is wholly justified in his 'uncomfortable feeling that Dr Malan has made himself and his colleagues in the Government more than a little ridiculous by throwing away his maxim of "South Africa first" in order to shower benefits on a foreign adventurer . . . Let us hope that when next he contemplates posturing as the Maecenas of archaeology he will resist the blandishments of peregrinating professors, or at least take independent advice from someone with a little knowledge and common sense'. We regard the grant as not only an insult to the archaeologists of Great Britain and South Africa, but also as a scandalous waste of public money. We only hope that it will not prejudice public opinion against further Government support for archaeology such as, if properly applied, would yield a rich harvest.

There is one aspect of the Zimbabwe ruins that never ceases to amaze us; namely, the fact that popular interest in the site should be lessened, or even cease altogether, if they are proved to be of native origin! We suppose that it is to be accounted for on the *omne ignotum pro mirabile* principle. Surely the ruins should be infinitely more interesting if it is proved—as it may well be—that they are a 'home product'? Surely this is more to be proud of than the remains of imaginary Semitic adventurers! From a strictly scientific point of view there can be no doubt whatever that Zimbabwe becomes *more* rather than *less* interesting, if it can be connected with other sites on the continent of Africa.

EDITORIAL NOTES

We are writing these notes in the middle of a spell of field-work. Readers of *ANTIQUITY* will hardly need to be told what field-work is, nor are we sure that we could tell them briefly if they asked us. We mention the fact merely to ventilate a need we have long felt—that of a catalogue of old manuscript maps and estate plans. Such maps exist in fairly large numbers in every county. Usually they are kept at the Estate Offices of large country houses, or, when such exist, in muniment rooms. They may be of any scale or age; a common scale is about 1 : 3000, and maps of an earlier date than 1600 are by no means common. For the field archaeologist they are absolutely invaluable. (So far as we are aware only one attempt has been made to catalogue such old maps). We do not know whether such documents come within the province of the Royal Commission on Historical Manuscripts; if not, we wish that some society or some private individual would calendar just those in a single county.

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At the moment we feel the need of some such catalogue for Oxfordshire. Many of our problems would be solved by ancient field-names, and by pre-enclosure maps; and the county is rich in old estates. But to hunt through all the Estate Offices one's self is an impossible task. The individual points that such maps determine are not, taken singly, of first-rate importance, though there are many exceptions. But field-work is essentially a mosaic whose pattern only becomes visible as the individual tesserae are restored to their right places. A beginning might well be made with the maps possessed by the colleges of Oxford and Cambridge. The task is a suitable one for post-graduate research and would be of more practical use than some theses, both to compiler and reader. We feel sure, moreover, that the authorities would willingly grant the necessary facilities.

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The threatened quarrying for stone near Hadrian's Wall demands National action, and as we go to press we are glad to note that the matter is receiving Government attention. The proposals are not quite clear and until they are known exactly it is unwise to express views. Meanwhile public opinion has been aroused and we are content to await results.

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Colonel Lindbergh's flight over British Honduras, the Peten region of Guatemala, and Yucatan, accompanied by two eminent field archaeologists, Drs Ricketson and Kidder, was an extremely interesting experiment.* It was hoped that aerial survey might prove of assistance to archaeological explorers in the Ancient Maya region, by determining the position of undiscovered ruins. The result is tantalizing. Certain, apparently new, sites were observed in the densely forested area, but it is quite clear that the observers were severely handicapped by the fact that they were flying over a country which is, for the most part, unmapped. It is significant that, in several cases, certain geographical features are quoted as 'probably' this or that point. Information that a ruin has been discovered by air near a 'probable' fixed point is not of assistance to an archaeological expedition which has to work its way thither on foot. In dense bush it is perfectly possible to pass an important complex of ruins within a hundred yards and see no trace of pyramids or buildings.



Under present conditions the position appears to be this:—An air-survey, over densely forested country, may reveal the existence of important archaeological sites, built on such a scale that their larger structures overtop the forest. But it cannot provide the accurate location which the party charged with the duty of developing the site, travelling on the ground, requires. The ground-party is necessary, because the aeroplane cannot land until a clearing is made. Once a landing place has been made, any excavation party would find its work facilitated to an almost magical degree, owing to the constant and rapid communication which it could maintain between camp and civilization. New Guinea furnishes an example; there the journey to the gold-fields can now be accomplished in forty-five minutes from the coast, whereas, by land, it takes about eight days.

It is obvious that air-transport and air-survey will provide and is providing enormous assistance to archaeological investigation in certain areas. But the flight under discussion, though interesting as an experiment, tends to show that a densely-forested and imperfectly mapped country must still rely on the earth-crawling party for its archaeological exploitation.

* The results are published in the *American Geographical Review*, whose Editor has kindly supplied us with an advance copy.

Early Names of Britain*

by EILERT EKWALL

Professor of English, University of Lund, Sweden

THE earliest names of Britain known are Celtic. We know that the islands were inhabited before the coming of the Celts, but nothing about the language of the earlier inhabitants or the names by which they designated the islands.

ALBION

This name is used by the Greek geographer Isidorus Characensis about the beginning of our era ('Αλβίων), by Pliny (*Albion*), in an anonymous Greek tract, *Περὶ κόσμου*, formerly held to have been by Aristotle, but now shown to be much later and to date from the first century A.D. ('Αλβίων), and by Ptolemy ('Αλβίων). The form *Albion* is found in many later sources and is used by Bede. In literary usage it still lives on. Ptolemy also has a somewhat different form, Ἀλουίων, and the same form occurs in an anonymous Greek tract published in *Geographi Graeci minores*, ed. Müller, II, 497. The name *Albion* is always used of Great Britain, often in contradistinction to Ireland. A still earlier example of the name than those given is perhaps offered by the Latin writer Rufus Sextus Avienus (4th cent. A.D.), who in his *Ora maritima* mentions Great Britain under the name of *insula Albionum*. *Albiones* is the name of the inhabitants, presumably derived from *Albion*. Avienus is supposed to have used a now lost Greek work, perhaps by Eratosthenes (about 300 B.C.), and as he quotes the Carthaginian Himilco (about 500 B.C.) as his authority for the account of the British Isles, it has been suggested that the name *Albion* goes back to the Carthaginian.

* The following notes, which are in substance identical with a lecture given to the Lund English Society a good many years ago, only claim to be a brief summary of the present stage of research in this field. For more detailed information I refer to Holder, *Alt-celtischer Sprachschatz*; McBain, *Etymology of the Principal Gaelic National Names*, etc. (Stirling, 1911); Sir J. Morris-Jones, *A Welsh Grammar*; Müllenhoff, *Deutsche Altertumskunde I* (Berlin, 1870); Rhys, *Celtic Britain*; Watson, *History of the Celtic Place-names of Scotland* (1926); Windisch, *Das keltische Britannien bis zu Kaiser Arthur* (Leipzig, 1912).

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The meaning of *Albion* is generally taken to be 'white country', the reference being to the white cliffs on the coasts, especially the south coast. It is a natural inference that the name was given by Continental Celts, very likely before the islands got a Celtic population. *Albion* is related to Latin *albus*, English *elf*, OE *ielset* 'a swan', the river-name *Elbe* and so on. The stem *alb-* 'white' is not found in Celtic languages except in names such as *Alps* (earlier *Albes*), named from their snow-clad peaks, *Alba*, a common river-name, etc.

In a later form the name *Albion* has come to be used of the northern part of the island: of Scotland. In Irish the name developed forms such as Old Irish *Alpe*, *Albe*, Middle Irish *Alba*, *Albu*, genitive *Alban*. In Modern Gaelic the form is *Alba*, genitive *Albann*. In the earliest Irish sources the name is still applied to the whole island, but later it comes to be used in its now prevalent restricted meaning. I take it that this change in meaning is due to the migration of Gaels from Ireland to Scotland that took place in the fifth century A.D., when the kingdom of Dal Riada was founded. We may assume that after this event the most intimate relations between Ireland and Albion would be those between the Gaels in Scotland and the mother country. The name *Albu* would be used chiefly of the northern part, and this would easily cause the name to be restricted to that part altogether. The modern English *Albania* and Shakespeare's *Albany* represent the inflected forms (*Alban* gen., *Albain* dat.).

BRITAIN

The name *Britannia* (*Britanni*, etc.) is mostly used only of the larger of the two British islands, and *Britanni*, *Brittones* of the inhabitants of the latter, but in early sources the two islands are sometimes called comprehensively 'the Britannic isles'. This latter usage is found in Polybius, the pseudo-Aristotelian tract, and Ptolemy. On the other hand already Strabo uses *ἡ Πρεττανικὴ* of Great Britain in contradistinction to Ireland. It is impossible to determine definitely which usage is in reality the earlier. At any rate there is no improbability in the theory that *Britannia* originally denoted the larger of the islands and that the term Britannic Isles was formed later to designate both Great Britain and Ireland.

The modern name *Britain* is late French (Fr. *Bretagne*), but there was an OE *Breoten* (*Bryten*), which comes more directly from Latin *Britannia*, possibly through a Celtic medium.

EARLY NAMES OF BRITAIN

Great Britain came into use to distinguish the mother country from *Little Britain* or Brittany, which was formerly often called *Britain* alone. In early sources it is not always clear if *Britain* (*Britannia*) means Great Britain or Brittany. In the fifth century A.D. a considerable number of Britons emigrated to Brittany in order to escape the invading Anglo-Saxons, and their new home was appropriately called *Britannia*. The distinction between the two Britains (*Britannia Magna* and *Parva*, or *Major* and *Minor*) was apparently not made until after the Norman Conquest. In the interesting paper by Mr D. MacRitchie and Mr W. H. Stevenson entitled *Great and Little Britain* (Society for Pure English, tract no. xvi), it is shown that Geoffrey of Monmouth seems to be the first who spoke of *Britannia Minor* in reference to Brittany; he uses *Britannia* alone of Great Britain. The term *Little* or *Less Britain* is afterwards used by English chroniclers, as Layamon, Robert of Gloucester, Robert of Brunne. The last two also speak of *the more Brutaine* or *Bretaygne þe grete* in reference to Great Britain.

The etymology and meaning of *Britanni*, *Britannia* and *Brittones* have given rise to a great deal of discussion. The whole problem is very complicated, not least owing to the curious variation found in the early forms of the names.

In Latin literature the most common form in the earliest sources is *Britannia* for the country, *Britanni* for the people. These forms are found in Catullus, Propertius, Vergil, Horace, Ovid, Pliny, etc. The metre shows that the *i* was short (*Britanni, -a*). The mss of Caesar vary between *Britanni* and *Brittani*. Catullus appears to have *Brittania* by the side of *Britannia*. But on the whole the form *Brittani(a)* appears to be later. It is found in Frontinus, Ulpianus, Solinus, Ammianus and others. *Brittones* is likewise later, occurring in Martial and Juvenal.

In Greek sources the initial consonant varies between *p* and *b*. Polybius (2nd cent. B.C.) has Βρεττανικός, but we cannot, of course, be sure that the form of the MS is correct. The pseudo-Aristotelian tract (1st cent. A.D.) has Βπερτανικός, and similar forms (Βπερτανός etc.) are given by Josephus (1st cent.), Ptolemy (or the mss of his work), Dio, Appianus, Dionysius Periegetes (c. A.D. 300). But the form in *p* is also very well evidenced. It is used by Strabo and Diodorus Siculus (about the beginning of our era), and there is reason to believe that it goes back to Pytheas. Ptolemy is stated by an ancient authority to have used the form. The form in *B* most often has double *t* (Βρεττανικός), though a form with single *t* also occurs now and then. The form in

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P- usually has *tt*, but Stephanus of Byzantium, who himself writes *Βρεττανῶν*, remarks that Marcian and Ptolemy had *Περαιῶδες ἤσσοι*.

Most scholars take the forms with *B-* and *P-* to be etymologically distinct. The etymology of *Britanni(a)* is generally held by these scholars to be obscure. Rhys, *Celtic Britain*, suggested that the stem might be that of Welsh *brethyn* 'cloth', Irish *bratt* 'a cloak', etc. If this is right, *Briton* would mean 'a person who wore clothes'. This etymology does not seem to have found acceptance and it may certainly be disregarded.

The other type (*Prettanoi*, etc.) is generally held to be connected with Old Welsh *Priten* (Middle Welsh *Pryden*) 'Picts', Old Irish *Cruthen* 'Pict', *Cruithne* 'Picts', and Welsh *Ynys Prydain* (earlier *Prydein*) 'Britain'. Welsh *Pryden* goes back to **Pritenes*, and the stem *prit-*, like that of Irish *Cruthen*, is a still earlier Celtic **kurit-*. The different treatment of *Ar. ky* (British *p*, Irish-Gaelic *k*) is one of the chief means of distinguishing the two divisions of Celtic, British and Goidelic, and if *Prettanoi* has been correctly identified with the Celtic words for Picts, etc., and is not a later development of *Brettanoi*, we must assume that *Prettanoi* goes back to a British source and not to a Goidelic one. Personally I have no doubt whatever that the identification of *Prettanoi* and Welsh *Prydyn* is correct. The regular *e* of *Prettanoi* is probably due, as suggested by Sir J. Morris Jones, *Welsh Grammar*, §66, to substitution of Greek *e* for an open British *i*. I suppose the common double *t* is also due to inexact rendering of the British form.

It is generally held that *Pryden*, etc. is derived from Welsh *pryd*, Irish *cruth* 'form, figure, picture' and means 'people adorned with figures, tattooed people'. The name would refer to the well-evidenced custom of the Picts of adorning their bodies with figures. According to Isidorus the Picts pricked their skins with needles and rubbed in the juice of plants. If this is right, *Pryden* would mean much the same as *Picts*, which is doubtless nothing but Latin *picti* 'painted ones'. This derivation is not accepted by Sir J. Morris Jones, who would rather connect the name with Welsh *pridd*, Irish *cré* 'loam' and suggests that *Britannia* means 'the island of the white cliffs'. His objection to the usual derivation is that tattooing was not a characteristic of the Picts alone, but a common Celtic custom, so that the name 'tattooed people' would be pointless.

This problem is a very difficult one, and I am not inclined to commit myself to a definite opinion. It is bound up, among other

EARLY NAMES OF BRITAIN

things, with the question of the ethnological position of the Picts. But I should be loth to abandon the old theory, which permits us to derive *Pryden*, etc. from an actually evidenced Celtic word. As regards the force of the name 'tattooed people', it should be borne in mind that what Caesar says about tattooing among the Britons is only that they painted themselves with woad so as to look terrible in war. There is a difference between this temporary use of war-paint and tattooing, and 'tattooed people' would be a sufficiently distinguishing name for people who had the Pictish custom. It would not necessarily follow that *Pryden* was originally the name of non-Celtic aborigines of Britain. It is also conceivable that the name was applied to the Celts who first came over to Britain and may there have adopted the custom of tattooing from the aborigines. On the other hand there would be nothing improbable in the suggestion that *Pryden* (*Pritenes*) was first applied by Celts to non-Celtic aborigines, and that the name was later transferred to British Celts. Such transference of names is by no means uncommon. We have a good analogy in the Old English *Defnas* 'the Saxons in Devon', which is nothing but *Dumnonii*, the name of the British tribes in the district.

Sir J. Morris Jones believes that the names *Britanni* and *Prettanoi* are etymologically identical, and I have no doubt he is right. It would be too remarkable a coincidence if there should have been two sets of names so similar in form and with the same application, and yet etymologically distinct. He assumes that the form in *P-* is the earlier and that the form in *B-* developed from it. I am more inclined to believe that *B-* is due to inexact rendering of the Celtic form by Carthaginians or Greeks.

I have the impression that the names *Britanni*, *Brittones*, etc. are chiefly used by classical writers, and that they do not seem to have been much used by the Celts themselves. The Middle Welsh *Brytaen* 'Britain' is clearly an adaptation of Latin *Britannia*. Welsh *Brython* certainly occurs in early poetry, but has left only very slight traces. *Brethonec* is the Cornish name for the British language, and *Brezonek* the Breton name for the Breton language. But there is no formal objection to taking these to be derived from Latin *Brittones*. Latin *tt* becomes British *th*, as in Welsh *llythyr* from *littera*, etc. If this is right we should have to assume that the form with *tt* (*Brittani(a)*, *Brittones*, etc.), which Sir J. Morris Jones takes to be due to hypocoristic doubling, developed in Latin.

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ENGLAND

This is, of course, OE *Englaland* 'the country of the Angles'. The origin of the name *Angles*, OE *Engle*, is not definitely settled. Bede says the Angles came from a district called *Angulus*, which is universally identified with *Angeln* in Schleswig. Presumably the district was named from the deep narrow inlet of Schlei, and the name is related to Norwegian *anгр* 'a narrow fiord'. Exactly the same name is found, in the form *Ongull*, as the old designation of a district in Norway, situated on a bay. Others would rather take *Angel* to have meant 'the nook or corner' and to refer to the corner between the Schlei and the Flensburg fiord. The most generally accepted opinion is that OE *Engle* is derived from the district name *Angel* and means 'the people of *Angel*'. Against this it has been objected, however, that the Continental *Anglii*, according to classical authorities, did not live on the Baltic, but farther inland on the Elbe, and also that the small *Angel* district cannot well have been the home of the powerful Anglian tribes that settled in England. Professor Axel Erdmann, *Über die Heimat und den Namen der Angeln* (Uppsala, 1897), suggested that *Anglii*, OE *Engle*, was derived from a word meaning 'a spear'. A Danish scholar, Jessen, has suggested that the name developed in England after the Anglian emigration, that the 'corner' that extends into the sea between the Thames and the Wash was once called *Angel*, the people receiving the name *Angle*. Recently my fellow-countryman, Professor Elis Wadstein, *On the origin of the English* (Uppsala, 1927), has modified this theory and suggested that '*Angle* may be a Teutonic translation of *Iceni*, the name of the Celtic inhabitants of the country later occupied by the East-Angles'. He suggests that *Iceni* may have been combined with Celtic **icen* (*icin*) 'angle (hamus)': Breton *igen*, *higen* 'hameçon' etc. and rendered in the language of the British Teutons by *Angili* or *Anguli*, etc.; cf. Old English *angel*, *angil*, *angul* 'angle, fish-hook'. Whatever may have been the original home of the *Anglii*, I have no doubt myself that the English Angles (*Engle*) belonged to the old Teutonic tribe. And Bede may very well be fundamentally correct, even if the *Anglii* in the 1st cent. lived on the Elbe, for the *Anglii* may have originally lived in *Angeln* and, after migrating southwards and absorbing other tribes, have gone over to Britain.

The name *Anglians*, *Engle*, at an early date began to be used with reference to all the Germanic tribes in England. Already Alfred the Great, of the Wessex house, calls England *Angelpeod* and the language *Englisc*. But the Celts to this day use the word *Saxon* for English(man).

EARLY NAMES OF BRITAIN

Sais is Welsh for 'Englishman'; it comes from Latin *Saxo*. A Welsh name for England is the enigmatic *Loegr*. The Irish name for England is *Sa(c)san* or *Sasana*, for Englishman *Sa(c)sanach*. This is easy to understand, for the first 'Anglo-Saxons' with whom the Celts came into contact were the Saxon pirates who began to harry the British coasts long before the Anglo-Saxon invasion took place.

A few notes may be added on the names of Wales, Ireland, Scotland.

WALES

This is an English name, really a tribal name, OE *Wealas* 'the Welsh'. It is a common phenomenon that tribal names become names of countries or districts. In England there are among others *Essex*, *Middlesex*, *Sussex*, *Wessex*, respectively 'the East, Middle, South and West Saxons'. The German *Baiern*, *Franken*, *Schwaben* mean 'the Bavarians, Franconians, Swabians'. *Wealas* is the plural of *Wealh*, and *Welsh* (OE *Wielisc*) is a derivative of the word. *Wealh* itself is an early loan-word from Celtic. It represents a modification of *Volcae*, the name of a Celtic tribe with which the Germans came early into contact and whose name they transferred to other Celts. The same word enters into *Cornwall*, OE *Cornwealas*, which is again a tribal name and means 'the Cornish Welsh'. *Corn* commemorates the Celtic tribe of the *Cornovii*. The Welsh name of Cornwall is *Cernyw* (Latinized *Cornubia*). The Cornishmen themselves called their country *Kernow*. *Cornovii* is derived from Celtic *cornu-* (Welsh *corn*) 'a horn' and means 'the people on the promontory'.

The Welsh call themselves *Cymry* and their country *Cymru*. *Cymro* 'a Welshman' (from **kom-brog*) means 'compatriot'. The name is supposed to have arisen after the Anglo-Saxon invasion. It was applied not only to the Britons in Wales, but also to those in the north of England and Scotland, who fought together against the invader. *Cymry* became OE *Cumbras*, and this name survives as the first element of *Cumberland*, where the Britons held their own for a long time.

IRELAND

Ireland, OE *Iraland*, means 'the country of the Irish'. OE *Iras* is derived from the old name of Ireland, old Irish *Hériu*, *Ériu*, gen. *Hérenn*, now *Eire*, gen. *Eireann*, Gaelic *Eireann*. The Welsh form is *Iwerddon*. English *Erin* represents the inflected form. *Ériu* comes from earlier

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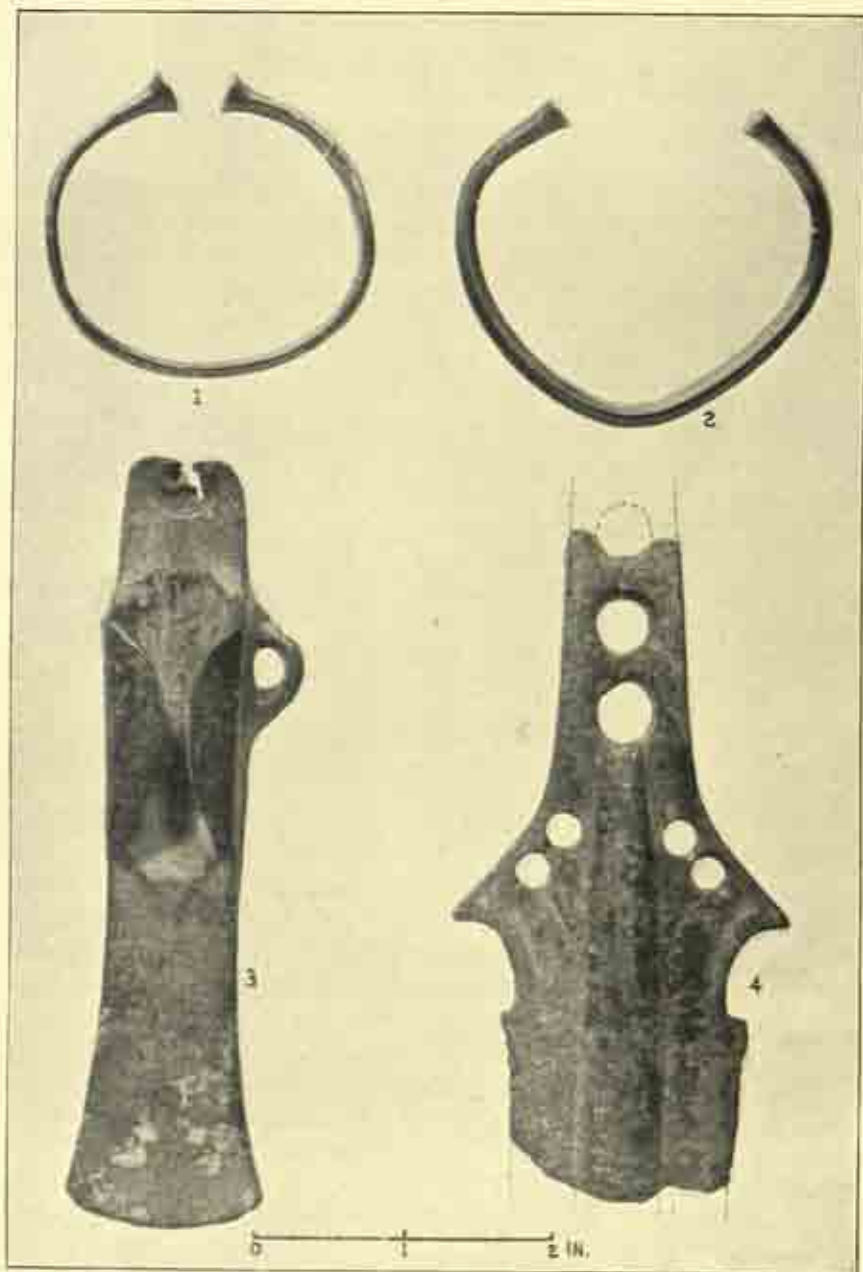
**Iveriō*, which appears in classical sources as *Ἰέριον* Strabo, etc., Latin *Iuverna*, *Hibernia*, etc. In Celtic languages Aryan *p* disappears (cf. Old Irish *athir* = Latin *pater*), and we may assume as a still earlier form **Piveriō*, a form which is indeed supported by the initial *H-* of the earliest Irish form. An initial *h-* occurs sometimes in early Irish as the last rest of a *p*. *Piveriō* has been convincingly compared with Greek *Πιερία*, the name of a district in Greece, the home of the Muses. Both belong to the root *pi-* 'fat', etc. found in English *fat*, etc. The meaning of *Erin* would thus be 'the fertile country'.

SCOTLAND

The inhabitants of Ireland were known as Gaels, earlier Gaedels or Goidels, a name of unknown etymology. Another name was *Scots*, Latin *Scotti*, and Ireland is sometimes referred to as *Scottia*. The meaning of *Scot* is also obscure. After the Irish emigration to Scotland the name *Scots* was applied also to the Gaels in Scotland, and eventually it was restricted to the Scottish Gaels. From the tribal name (or *Scottas*) was formed the Old English name *Scotland*, which is used by Alfred the Great in *Orosius* of Ireland, but in the *Anglo-Saxon Chronicle* under the year 933 is applied to Scotland.

A name that is sometimes used of Scotland is *Caledonia*, which strictly refers only to the northern part. This name is derived from *Caledones* or *Caledonii*, the name of a powerful British tribe settled in the north of Scotland and often mentioned by classical writers. The name is still preserved in *Dunkeld*. The etymology of the name is disputed. The old derivation from the root of Welsh *celli* 'wood' cannot be upheld. Welsh *caled* 'hard' comes from *calet* and cannot be the immediate source, but it may be a related word.

PLATE I



WINGED AXE, SWORD-HILT, AND GOLD BRACELETS, BECHYN HEAD, SUSSEX
 From 'A Guide to the Antiquities of the Domesday Age', 1920 (British Museum), plate iv, by permission

The Sword-bearers

by ESTYN EVANS

EIGHT years ago, in an article entitled 'A prehistoric invasion of England',¹ Mr O. G. S. Crawford put forward the hypothesis that 'towards the close of the Bronze Age the British Isles were invaded by the first wave of Celtic-speaking peoples bringing with them leaf-shaped bronze swords, many other entirely new types of bronze objects, and at least two types of pottery new to these islands'. It may perhaps be said that this view, with certain qualifications, notably as regards chronology,* has met with general acceptance. A comparative study of types of bronze implements over a wide geographical field, while yielding corroborative evidence in support of the invasion theory, has also raised important problems in other directions; and it is my present object to give the results of an enquiry into the origins and distributions of certain type-specimens of the late Bronze Age cultures of western Europe.

In Britain, bronze itself appears to have been quite rare during the early and middle parts of the Bronze Age. Hoards of bronze implements are few in number; and it is not until the end of the period that the metal industry was fully developed. The change is marked by the appearance of the true winged celt or axe (plate 1), and by certain other 'exotic' objects often found associated with it in hoards. A similar disparity between the cultures of the middle and late Bronze Age has been noticed elsewhere—in Belgium, the Paris Basin, Brittany,† Spain and South France. In Picardy,² for example, the industries are very monotonous until the appearance of the winged celt, associated with which one invariably finds numerous artifacts and ornaments of a new design and skilful execution. Many independent workers have commented on the general similarity (in some cases amounting to

* The date suggested was 800-700 B.C. Some workers would place the main invasion two or three centuries earlier while others would bring the date forward by a similar period.

† Here the cult of the square-socketed axe is equally distinctive, but this problem cannot be pursued here.

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identity) between the objects found in such complex hoards* and those represented in every collection of 'lake-dwelling material'. The highly characteristic winged celt, whether found in Spain, Brittany, Picardy or Essex, is precisely the *lappenabsatzbeil* which forms 70 per cent. of the total varieties yielded by the pile-dwellings of Switzerland and Savoy.

In Britain the distribution of axes of this type (fig. 1) is very restricted, while in France there are marked concentrations along the coastal regions between the Loire and the Somme. Scattered finds occur along the river-lines of Loire, Seine, Marne and Moselle, radiating from the west-Alpine culture province, the most characteristic centre of the winged axe.[†]

Many type-objects of this culture have been noticed by Crawford, who is dealing specifically with Britain. An important link is provided by the tanged two-edged razors, widely distributed among the hoards of northwest France. A small rectangular blade,‡ perforated near the back, has been found in Essex and Kent, and in the French departments of Morbihan, Manche, Finistère, Cher, Ile-et-Vilaine and Charente. The socketed dagger (or knife) is another type-object. Of special interest are the pins of the type of the lake-dwellings, notably the thistle-headed variety so common in the west-Alpine province and found in the departments of Jura, Oise, Cher, Morbihan and Seine-et-Oise. We may further mention the curved-back knife of the lake-dwellings, socketed celts of certain forms—frequently with vestigial wing decoration—rings, and the socketed types of hammers, sickles, gouges and chisels. There can be little doubt that, although many of these bronzes originated farther east, it was from the west-Alpine province that they spread to Britain. But more conclusive evidence is forthcoming from a study of the bronze sword.

It might be claimed that certain objects and customs were introduced into this country by the 'peaceful penetration' of trade rather than by invading hosts of immigrants. But, while fully admitting that such influences were at work, I think it will be generally agreed that nothing short of actual immigration can account for the spread of new and special forms of a 'superior weapon' such as the bronze sword. Moreover, the evidence is cumulative; and when considered as a whole, the case for invasion is a very strong one.

* See Appendix.

† The type-example is that from the All Hallows hoard (Hoo, Kent). Evans, *Bronze Implements*, fig. 261.

Distribution of hoards
containing
WINGED AXES.
(*Lappenabsatzbeil*)

Note
It is doubtful whether the speci-
mens in some of the hoards marked
in South France are true winged-
palstaves of the type of Beaulieu Head.

Scale of Miles
0 20 40 60 80 100

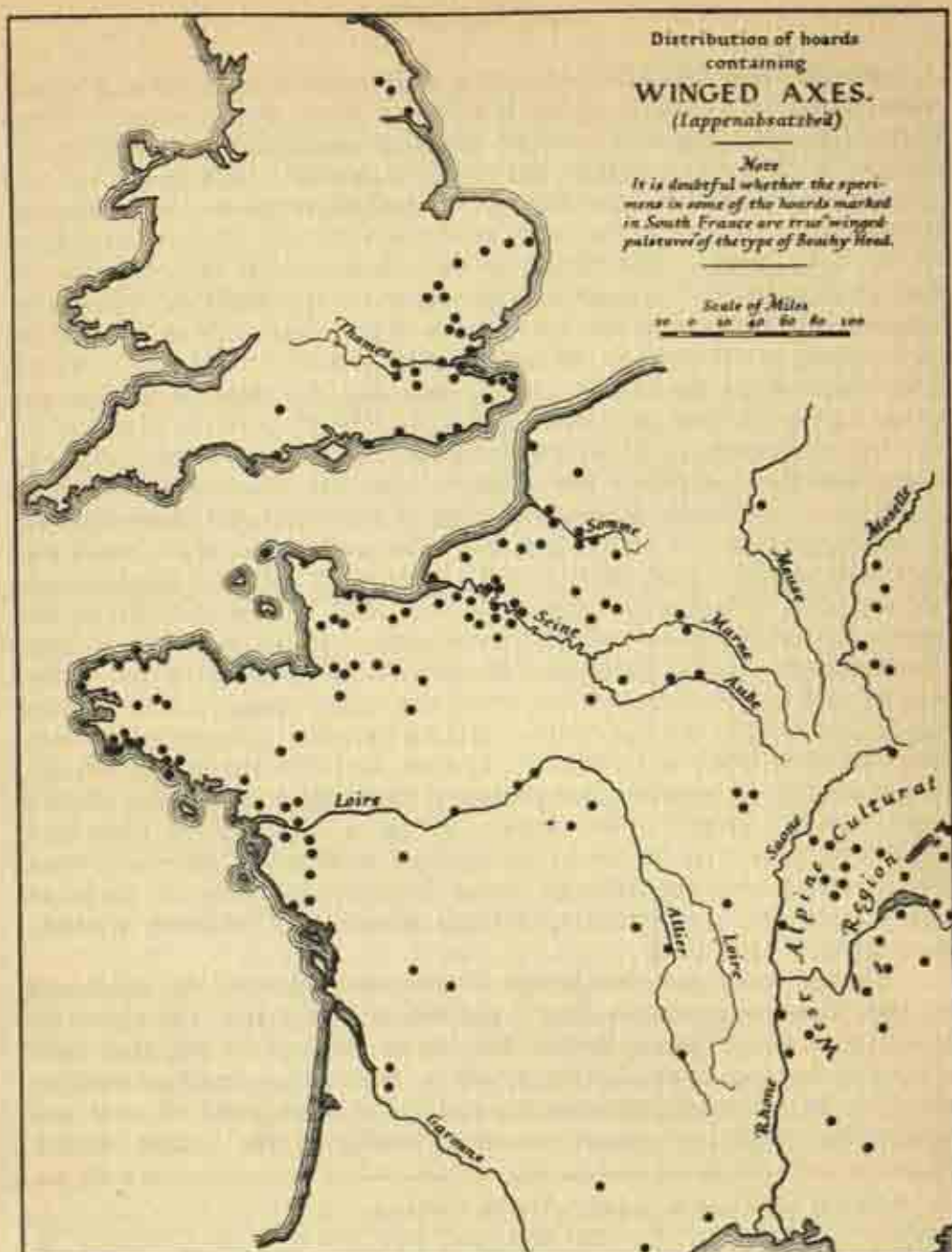


FIG. 1

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Several attempts have been made to connect British types of sword with invasive movements of the late Bronze Age ; but as yet no serious notice has been taken of a sword which is associated, in nearly every case, with the more complex hoards of France and southeast England. That this important culture-link has escaped attention may be attributed to the fact that attractive unbroken specimens are rare—they are unknown in the large hoards, occurring only in isolation ; but the map (fig. 2) will serve to indicate its capital importance for the problem of Britain's continental relations in the late Bronze Age. Not only is this sword of frequent occurrence in the complex hoards of France and lowland England, but its distribution area is sensibly the same as that of the winged celt. It does not occur east of the Rhine* or south of the Alps. Brewis recognizes it in seven founders' hoards in Sussex, Surrey, Essex and Kent, and in a fine example from the Thames at Brentford (plate II). The blade differs from that of the usual leaf-shaped sword in having parallel, or almost parallel, sides and frequently a narrowed termination of the kind called 'carp's tongue'. It has a rounded mid-rib outlined at each side by incised lines that 'sweep outward at the *ricasso* following the line of its curved edge' (Plate IV, no. 3). Very characteristic are the deep squarish notches at the base of the blade, which provide, in conjunction with the broad tang, a rudimentary guard unknown in the leaf-shaped striking swords. The curve between tang and butt tends to be slightly concave, and thus the sword falls late in the scheme of classification proposed by Peake.⁵ Examples of hilts from various localities are shown in fig. 4. It will be seen that, neglecting minor variations in the method of attaching the hilt plates, the swords have essentially the same features and must be classified apart from the broad striking swords which have hitherto virtually monopolized attention.

Passing over the details for France and Britain, we may turn to the Iberian peninsula (not included in the map). It has been stated that flange-hilted bronze swords are absent in the peninsula. This may be true of specifically *leaf-shaped* forms, but the type described above is by no means uncommon, and its unquestionable associations at Huelva,⁶ where 75 specimens were found, provide a valuable clue

* The only exceptions appear to be two specimens in the British Museum, one labelled 'Denmark' and the other (a variant) from Saxony. Naue's plates in *Die vorrömischen Schwerter* include no central European examples : indeed the only specimen shown is from Vénat (Charente).

Distribution of
BRONZE SWORDS
of the type of
BEACHY HEAD.

- † Isolated finds
- Complex hoards
- Swiss Lake dwellings

N.B. The sword also occurs on numerous sites around the Atlantic Coast of the Iberian Peninsula.

Scale of Miles
10 20 30 40 50 60 70 80 90 100

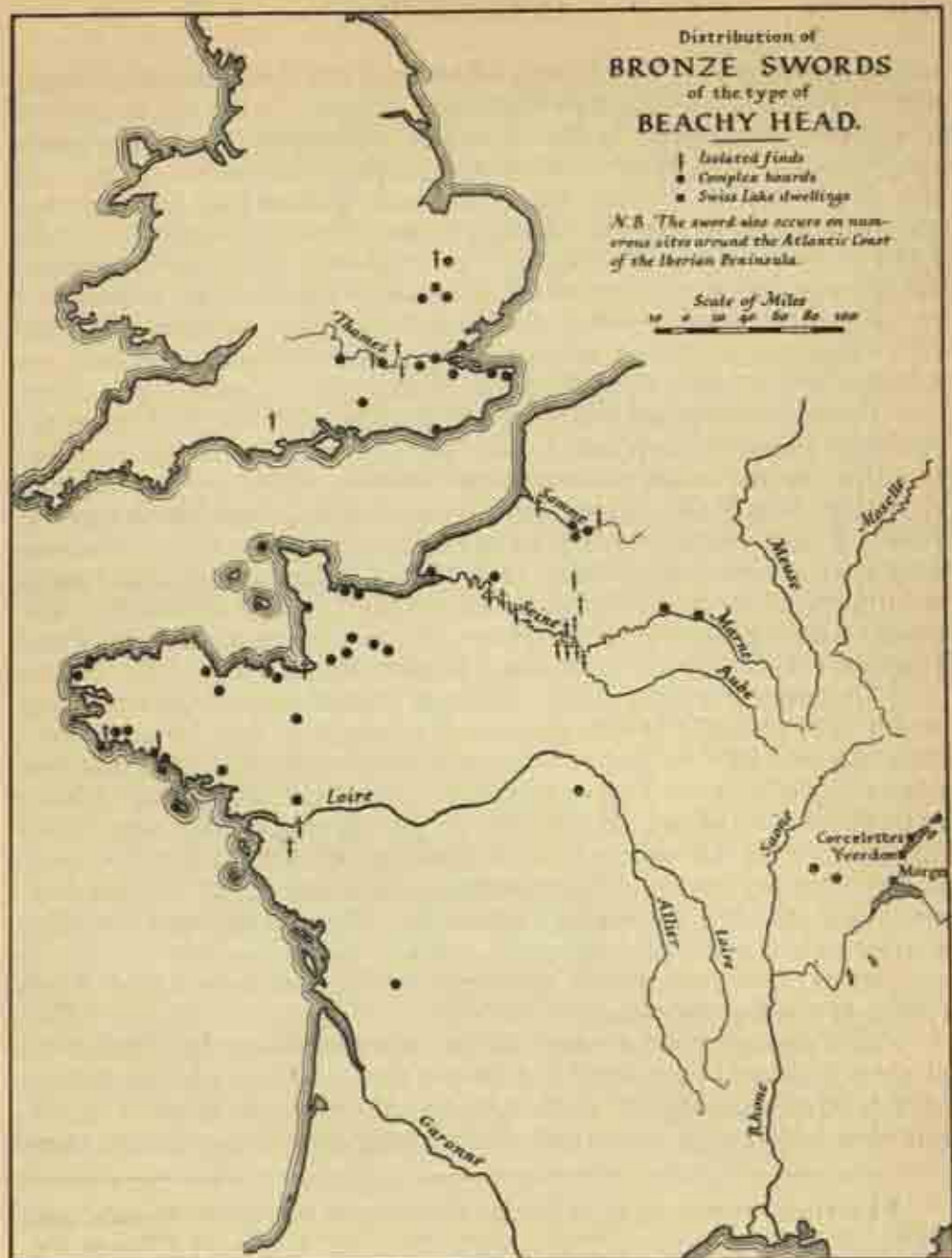


FIG. 2

This map shows only those hoards where it has been possible to check the type of sword: in all probability there are scores of other sites in certain regions, especially Brittany. The three pile-dwellings marked are those which have yielded swords.

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to its chronology. The British Museum has a specimen with carp's tongue point from Tabernas (Almeria). Proved associations are rare in the peninsula, though Bosch-Gimpera states that the sword prevails throughout the Asturias, Galicia and Portugal 'with axes of Western European type'.^{*} Several examples from Estremadura and Alemtejo are to be found in the Ethnological Museum at Belem, Lisbon:^{*} one hilt from the hoard of Carvalhal (Estremadura Cistagana) is the exact counterpart of specimens from Vénat (Charente) and Questembert (Morbihan). There are thus clear indications of fragmentary intrusions of this northern culture around all the coasts of the peninsula, the Mediterranean coast alone being excepted.

It might be thought that we are dealing with diffusion along the Atlantic coastal route, and in all probability that is partly true; but the interest of this distribution increases when we find that the thrusting sword also occurs in the Swiss pile-dwellings and in the Jura. It is possible, further, to follow its evolution there. We have seen that a considerable body of evidence points to the west-Alpine cultural province as the source of the winged axe and of the associated bronzes that appear in fixed forms around the coasts of France and England; and this culture may now claim our attention.

Modern investigations have shown that the large pile-dwellings which have yielded the rich museum medleys generally labelled 'lake-dwelling material' belong to a late and distinct phase in the habitation of the lake shores.[†] There is little doubt that the high-grade industry of this period was based on a degree of agricultural prosperity previously unknown. To the same period of optimum climatic conditions north of the Alps belong the splendid artistic achievements of the Scandinavian and eastern Hungarian Bronze Ages. Around the lakes the dried shores would seem to have been utilized for agriculture, and it is suggestive that vast numbers of bronze sickles have been found in this region of the western Alps.

This strongly unified west-Alpine culture, best exemplified in the pile-dwellings of Switzerland and Savoy, owed its virility to the grafting of intrusive east-Alpine culture-traits on to a conservative native tradition which produced, throughout prehistoric times, 'great unitary

^{*} I am indebted to Miss L. F. Chitty for allowing me to make use of her notes on the collections at Belem.

[†] See Dr Viollier, in *Pfahlbauten: zehnter Bericht*. Zürich, 1924. [Reviewed in *ANTIQUITY*, 1927, 1, 381-3].

THE SWORD-BEARERS

cultures in the upper course of the Rhône and its tributaries, the Saône and the Doubs'.⁸ The revived cultural focus of the Rhône was henceforth to play, until far on into the Iron Age, a predominant rôle in the diffusion of the arts and crafts throughout western Europe. Artistically the region is marked by a restrained style of decoration consisting of rigidly organized line-ornamentation. 'Perfect elegance, combined with an obstinate conservatism in shapes, is the characteristic feature of this art as a whole'; and this is strikingly true of the bronzes enumerated above.

It has long been clear that the west-Alpine cultures played a leading part in the evolution of later varieties of the bronze sword. Peake thinks that his 'proto-Hallstatt' form (F)* originated in Switzerland, but I am inclined to regard this as a type peculiar to the British Isles and to see in his type E the variety from which the Hallstatt weapon evolved.

The urn-field culture (*Oberendingen*)¹⁰ was responsible for the introduction into the west of the first flange-hilted sword; and from this prototype (Peake's D, dated, from its occurrence at Mycenae and in Egypt, to the end of the 13th century), certain regional types, varying according to local artistic tradition, were developed around the Alpine borders. Thus it was in the territory adjoining Switzerland on the east—the Illyrian province of Kraft—that the iron sword ultimately appeared, modelled on the bronze striking sword that retained the leaf-shaped blade of type E. But in the Rhône province a different regional tradition* perpetuated the straight blade of the forms under discussion, and ultimately produced the solid hafted swords of the types of Möriegen and Auvernier. The hafts in plate III illustrate the tendencies of development from a form (no. 1) which has some of the features of the base type D. These tendencies are:—the deepening of the notches, the incurving and flattening of the hilt-plate, reduction of flanges, and with that a widening of the haft that recalls the development of the bronze Hallstatt sword. When the custom of casting the haft in solid bronze became general (probably under the influence of South Germany), the straight blade was preserved and the incipient guard was accentuated in the Rhône valley (Möriegen) sword.

* The rapiers of the Mels-Rixheim culture (of Italian affinities) may have played some part: the blade with its rounded mid-rib tends to end in a narrowed point, and the true carp's tongue is not uncommon in Italian swords. The thrusting weapon, it has been observed, has always been more in favour among Mediterranean peoples than the striking sword of the North.

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We may briefly notice some characteristics of other bronzes of the west-Alpine province. The invention of the socketed celt was one of the contributions of the Lausitz culture-centre;¹¹ and it was in the application of the idea of the socket that the craftsmen of the west-Alpine area excelled. The skilful use of core-casting was maintained and even improved by the bronze-workers who settled on the Atlantic coasts, and it is well illustrated in the bugle-shaped objects (plate IV, no. 1) found in several of the complex hoards of France and Britain and variously described as chapes, buckles, horse-trappings and 'mysterious objects'.¹² Its associations suggest that it was used as a fastener for a sword belt. The persistence of its intricate shape and its distribution (fig. 3) are alike significant. Though there seems to be no example of this object among pile-dwelling collections, a very frequent instrument there is a bronze loop of similar shape but cast solid (plate III, nos. 4 and 5), doubtless the prototype of the hollow fastener. The solid form also occurs in France, as at Frouard (Meurthe-et-Moselle).

It must be borne in mind that the Jura formed part of the west-Alpine province, and the importance of this favourable limestone tract, rich in salt supplies and therefore attractive to cereal growers, who seem universally to require salt with a cereal diet, has been frequently demonstrated. It was more easy of access in early times than either the Belfort gap to the north or the Swiss plateau to the south; it served as a westward avenue for more than one penetration into France. When resistance had weakened with deteriorating climate in the first centuries of the last millennium, the bearers of the Hallstatt sword pushed west along this line, and traces of a refugee movement from the western Alps occur throughout the Midi, where hoards of late date have frequently been found in grottoes and rock shelters. Incidentally we may note that the 'industrie launacienne' of Déchelette¹³ probably represents a focus of Bronze Age survivals in Hérault, untouched by the early Hallstatt invaders.

Coutil¹⁴ enumerates some two dozen hoards (mostly of late date) from the departments of Doubs and Jura, and in the latter department was discovered, in 1865, the important hoard of Larnaud. Most of the types—winged and socketed celts, chisels, swords, razors, buttons, bracelets, daggers, etc.—can be exactly matched in the hoards of northwest France and southeast England, while the fish-hooks found there provide another link between the lakes and the hoards of Oise.

The conclusion, therefore, is irresistible: there was, towards the end of the Bronze Age, a movement of peoples from the Rhône province

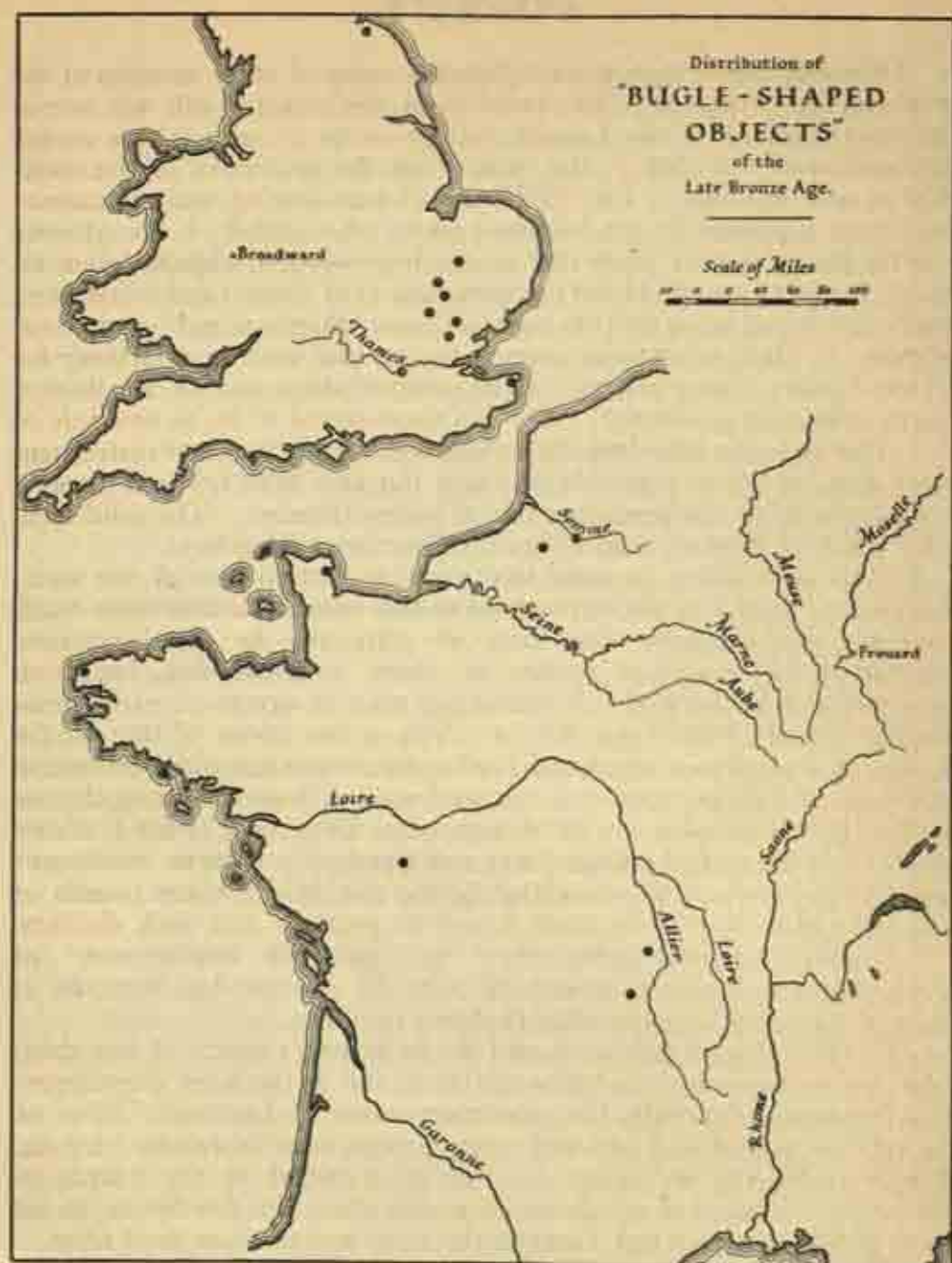


FIG. 3

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to the northwest. One must of course recognize the complexity of this movement, and that others of a peaceful, commercial kind were involved with it. Nevertheless I regard it as certain that an actual folk-movement did take place, and I would assign it to the end of the second millennium B.C. That there were other spreads (to Catalonia, for example) is demonstrated by Kraft,¹⁵ but the movement to the southwest seems, from the evidence at present available, to have been distinct from that to the northwest. The same factor, however, was probably at work in both cases—expansion due to prosperity, and perhaps to pressure of population, during a period of marked progress in the adaptation of man to his physical environment in the region north of the Alps.

The vigorous west-Alpine culture was carried down the radiating river-ways of Loire, Seine, Marne and Meuse. We find little trace of the emigrants in the forested plains of central France; but northwards they reached Belgium, though in no great force, and westwards their industries superseded the languishing native palstave-culture, and along the ancient coastwise routes they expanded rapidly. This movement probably represents the first wave of Celtic-speaking people which reached the peninsulas of the far west. Without embarking on controversial waters it is interesting in this connexion to recall a suggestion made by Sir John Rhys.¹⁶ 'The potentialities of the Alpine region as a source of population, he remarks 'are instanced so late as the time of Caesar, when the Helvetii set out from their country to seek a home elsewhere, and though they were unsuccessful, many similar migrations had probably succeeded before'. It is worth recording that the Helvetii were making for the territory of the Santones in western Gaul.

Unfortunately we know next to nothing of the dwellings or the pottery of the invaders, at any rate on the continent, though, as in Britain, evidence would probably be found if sufficient search were made. The French hoards have frequently been found contained in 'de grands vases unis ou simplement ornés de cordons d'applique, avec impressions digitales',¹⁷ a description that reminds us of the urns (barrel- or bucket-shaped) with raised ornament which we find in Britain during the period of transition from bronze to iron. Though the origins of these urns are obscure they are undoubtedly exotic so far as Britain is concerned; and the frequently associated Deverel pots can be traced definitely to the urnfield cultures of eastern France, being ultimately derived from Lausitz types.

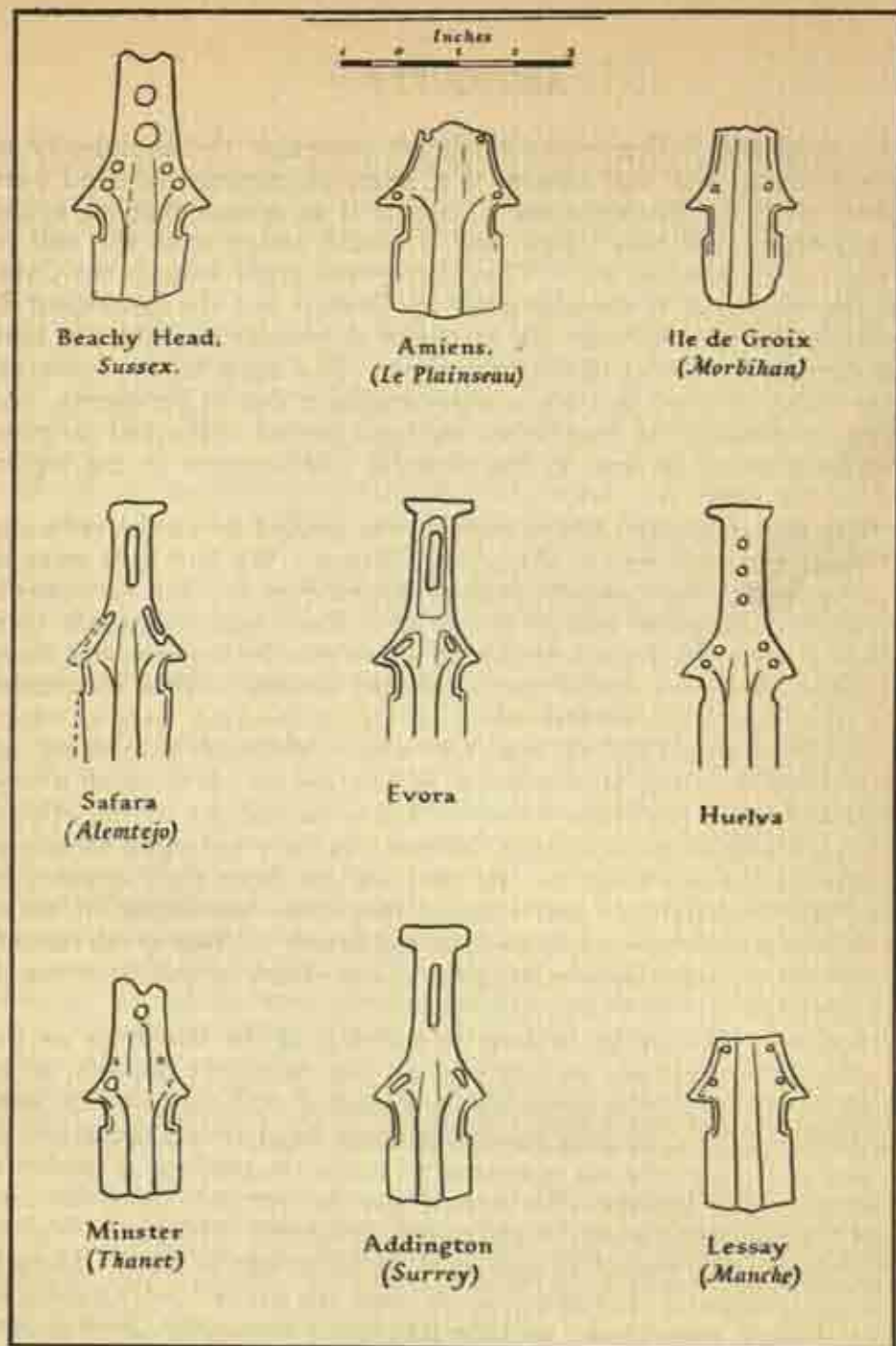


FIG. 4

SWORD-HILTS FROM SOUTHEAST BRITAIN, PICARDY, NORMANDY, BRITTANY, SPAIN AND PORTUGAL

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Peake has claimed that the earlier forms of these urns were introduced in the pure Bronze Age by invading peoples armed with swords of type E; while he would associate the occasional Hallstatt culture-traits in south England with invaders who carried the bronze Hallstatt weapon. But this sword is far from common anywhere in northwest Europe, and there seems to be little indication of anything more than fragmentary intrusion of the culture of the *early* Hallstatt period. Nor is type E found, save sporadically, among the complex hoards marked on the distribution map (fig. 1). It probably reached Britain by trade during the commercial expansion of central Europe in the 12th century. Early forms are found in Eure and in the Somme area, in association with native palstaves. Later, from the northern foreland of the Alps, Mörigen and antennae swords found their way even to Finland and central Italy.

The E swords are found widely distributed in England and Wales, (though there is a marked group in the lower Thames valley), and they seem to have been manufactured locally from foreign models, and to have given rise to the characteristic leaf-shaped sword of the late Bronze Age in north and west Britain and in Ireland (type F).

We conclude, therefore, that it was with the thrusting sword of the type of Beachy Head that the first group of invaders landed around the continental coasts of England, somewhere about 1000 B.C.,* the first and not the least important of a long series of incursions that persisted until the coming of the Romans. The new comers probably brought with them improvements in the means of production, in social organization, and certainly in the art of metal working as revolutionary as any that our islands had previously known. They settled in the lowlands, often on offshore islands, as in Brittany, and seem to have penetrated inland along several lines, first of all, perhaps, by the south side of the

* It has been contended, particularly by Dr R. C. C. Clay, that the late bronze industries of Britain were introduced, together with the new types of urns, at a time, in the early Iron period, when the use of iron was already known. The argument is set forth in a paper on the Pokesdown urn-field (*Antiquaries Journal*, VII, October 1927), but the evidence for a long overlap is inconclusive and cannot be accepted by the student who approaches the problem from the chronological bases of the Bronze Age. The advanced Bronze Age must have had an independent life of some duration. There was, of course, some overlap in the use of the older metal: bronze working did not go entirely out of fashion on the introduction of a knowledge of iron. One would expect its survival for the construction of precisely those objects on which Dr Clay's argument is based: the socketed axe, which could not be cast in the new metal, and such articles as razors, rings, beads and other ornaments.

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Thames. 'But their hearts would be set on the good things that they had heard to be awaiting them north of the river, the fat flat sunny cornlands of East Anglia, still the teeming mother of the best English wheat'.* This is an essayist's fancy, but archaeology supports this conjectural explanation of the *raison d'être* of London. We find abundant traces of the invaders at Grays, where a natural pier of chalk and gravel invites a crossing, and at many other spots on the gradually narrowing estuary, until at Brentford we come to the easiest crossing of all; and close by at Old England† their culture, with winged and socketed axes, finger-tip pottery, carp's tongue swords, belt-fasteners, razors, pile-dwelling pins, tweezers, chisels, and so forth, is found in unmistakable completeness.

The limited distribution of this industry must not be taken to indicate that it played no significant part in shaping the cultures of Britain. It is true that the finely curved winged celt and the thrusting sword did not spread: they were fixed forms adapted, perhaps, to particular needs. The socketed axe lived longer, though it too was the last of its line and did not long survive the introduction of iron weapons in the southeast. But in those parts of the British Isles remote from Continental influences the socketed axe had still a long life before it; and in general the character of the late Bronze Age cultures of most of Britain and Ireland seems to have been determined by the absorption of elements derived from that of the invaders. The striking sword (E) had spread at an earlier date throughout Britain, and it was found more serviceable than the new weapon introduced by the Alpine villagers; but many objects of various types, useful and ornamental—socketed knives, gouges and chisels, hammers, chapes, tweezers, razors, buttons, sickles, bracelets, pins—were received from the southeast, reaching Wales and Ireland about the 9th century, and persisting long after iron had come into general use in most of lowland Britain. The Llynfawr hoard on the margins between the two regions, provides an interesting example of the persistence of bronze types in iron.

The winged axe was not entirely without influence on the native forms: for palstaves with the flanges bent over in obvious imitation of wings occur in Wales and Scotland and are common in Ireland, especially

* C. E. Montague, *The Right Place*, p. 173.

† The importance of this site was demonstrated by Crawford in *Antiquaries Journal*, 1922, II, 33. See also R. E. M. Wheeler, in *Antiquity*, March 1929 (especially plates I and II).

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in the northeast. In connexion with this and with similar phenomena we should recall the theory advanced by Dr Cyril Fox,¹⁸ in working out cultural contrasts between highland and lowland Britain, that the encrusted urns of the former province (commonest in northeast Ireland and dated by Fox from 900 to 600 B.C.) represent the *absorption* of the culture which introduced urns with ornamentation on raised ribs into southern and eastern England. It is not unlikely that with this absorption, and without any important movement of peoples, the first Celtic language brought by the invaders from the Celtic Cradle may have reached the west, replacing a primitive tongue of pre-Aryan type. The new language would in this case have reached Ireland, like other intrusive elements at many periods, by way of the northeast.

Meanwhile fresh continental influences were coming to the south and east coasts of England with the manifold movements brought into existence by the iron sword and by the destruction of the pile-dwellings by floods about 800 B.C. It was their arrival that dealt the death-blow to the late Bronze Age in lowland Britain. At first the new comers may have landed at Christchurch, penetrating through the open gravel corridor of the lower Avon valley to Wiltshire; but the excavations on Park Brow¹⁹ suggest that they ultimately overcame the agricultural peoples farther east, with their comparatively high-grade but conservative bronze culture. Evidence for a similar crisis has been found at Scarborough,²⁰ in a region which is, geographically, a continuation of the southeastern province.*

A few facts seem thus to be emerging out of the confusion that has covered the prehistory of Britain during the period (1100-500 B.C.) which coincides with that of Hallstatt in central Europe. That it was a time of change and progress on the continent is abundantly clear; and in Britain we have indications of wave after wave of invaders bringing with them new ideas and a new language with which to exchange those ideas. We have tried to show the distinction and importance of the first of those waves which swept across the continent and broke on the shores of Britain.

An interesting problem raised by this study of type-distributions is the partial interruption, during the late Bronze Age, of the ancient coastal routes of the west, the long survival of which is one of the fundamental facts in European prehistory. Though trade doubtless

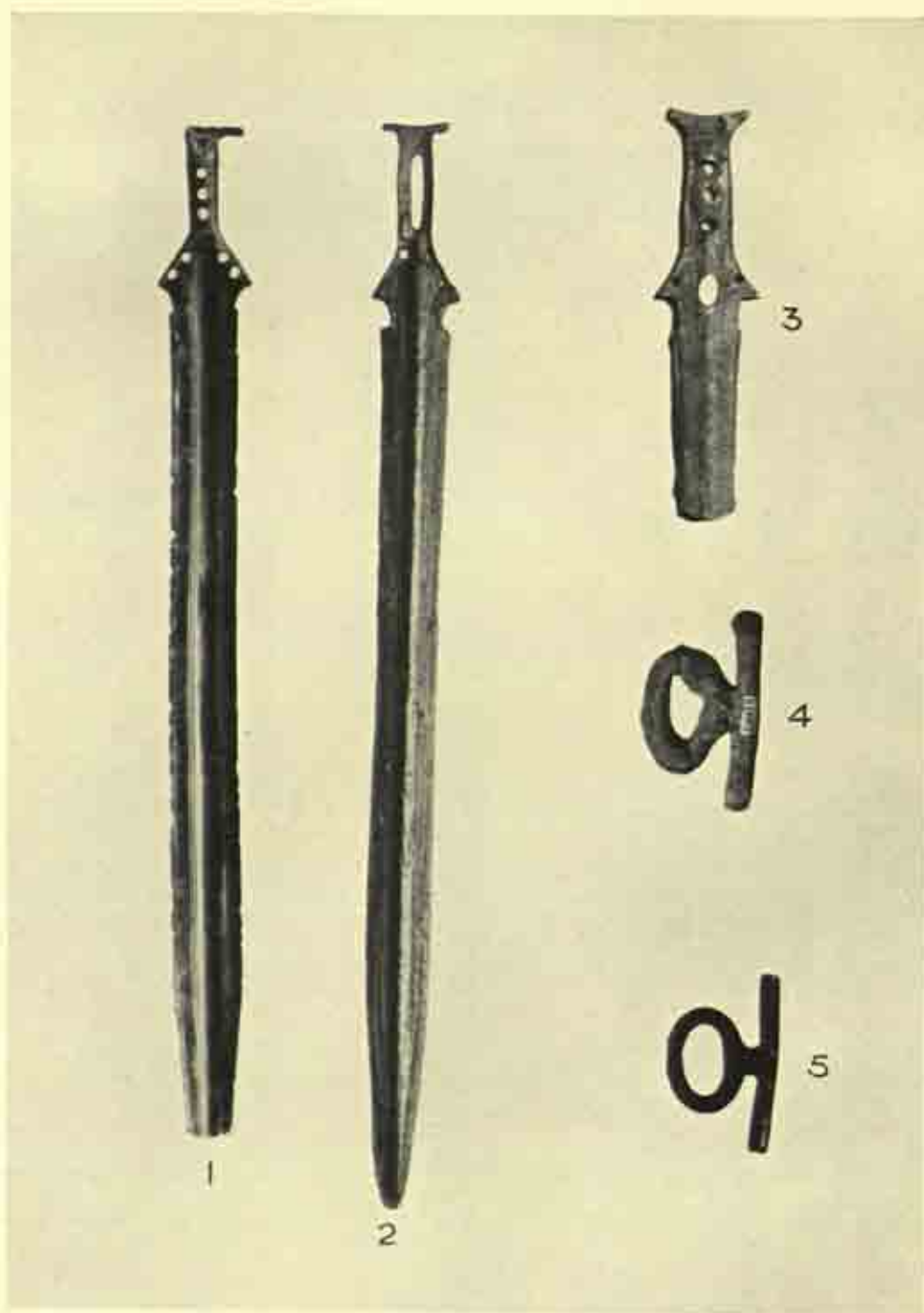
* It is equally possible that the invaders landed in bands all along our eastern and southern coasts, as did the Saxons later, and probably also the Beaker people at the beginning of the Bronze Age.—ED.

PLATE II



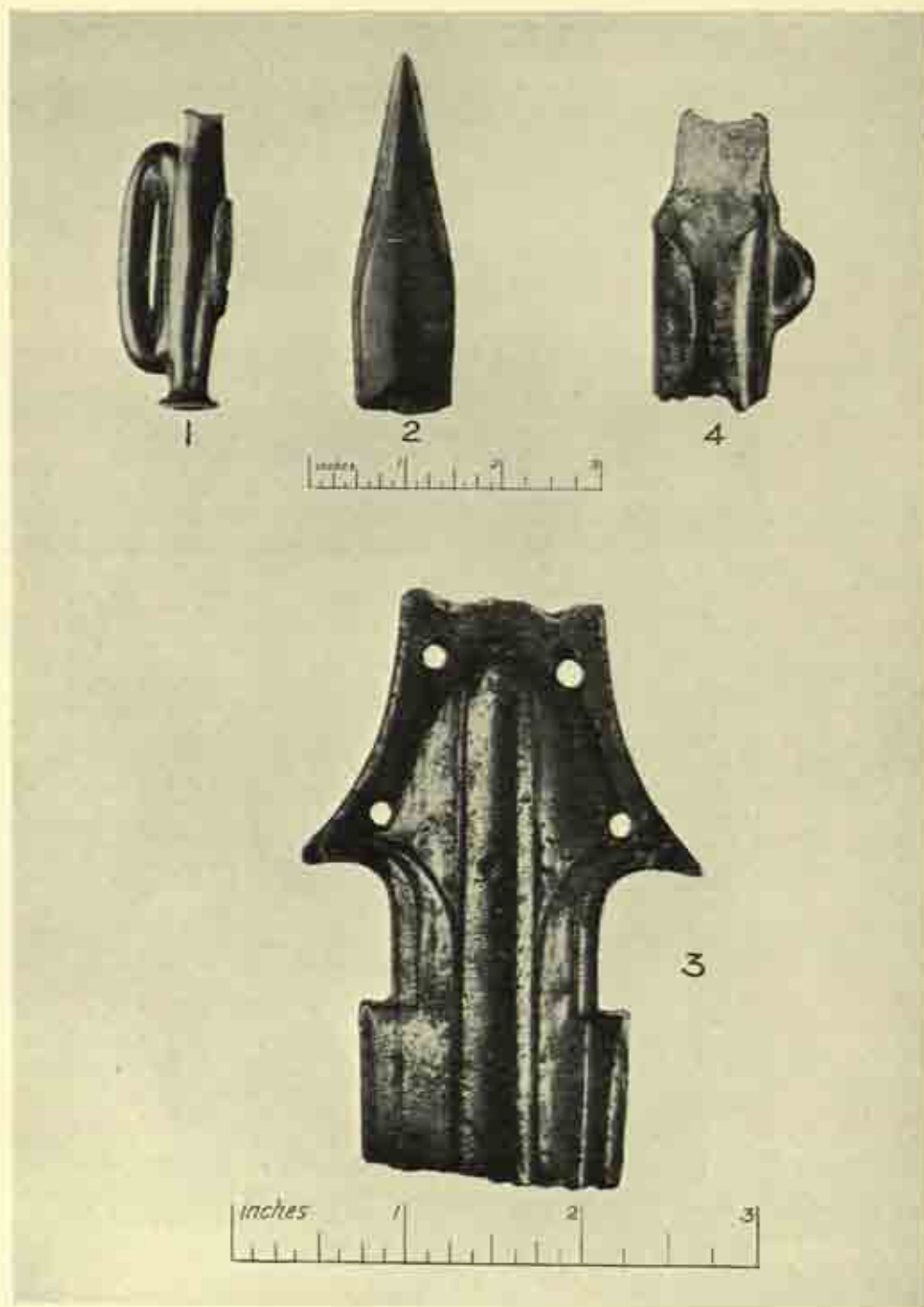
SWORD FROM THE THAMES, BRENTFORD MUSEUM
From 'Archæologia', vol. LXXIII, by permission

PLATE III



- SWISS SWORDS
- 1 Near Yverdon, lake of Neuchâtel (isolated find) 3 Grandson, lake of Neuchâtel
 2 Morges, lake of Geneva 4 and 5 Bronze loops, cast solid, recalling bugle-shaped objects

PLATE IV



PART OF HOARD FROM CUMBERLOW GREEN, HERTS (CAMBRIDGE MUSEUM)

- 1 Ring-shaped object
2 Point of socketed implement

- 3 Hilt of sword (on a larger scale than the other objects)
4 Upper portion of winged axe (*Sappharabaustril*)

PLATE V



HOARD OF BRONZE IMPLEMENTS, MINSTER, THANET

From 'A Guide to the Antiquities of the Bronze Age', 1920 (British Museum), plate III, by permission.

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played a subsidiary part in the diffusion of the industries examined in this paper, the old contacts between Brittany and Ireland seem to have been broken and the culture currents deflected along the English Channel.

Thus the far West came to be influenced more and more by the lowland province of England; and we may see in this change the full realization of the culture focus of the western Alps, a region which synthetized the traditions of East and West, of the Danubian and western Mediterranean provinces, and introduced into our islands a scheme of life adapted to the environment of Europe north of the mountain belt, where it was evolved.*

APPENDIX

INVENTORIES OF HOARDS

I GUIDEL (KERHAR), MORBIHAN: Vannes Museum

- A winged celt and fragments of others.
- Portion of a socketed celt with vestigial wings.
- Fragments of swords.
- Fragments of socketed knives.
- A chisel.
- 3 socketed spearheads.
- 3 razors.
- 5 pins (4 thistle-headed).
- 3 buttons.
- Ornament stamped with concentric circle design.
- Bronze leaf: fragments of twisted wire and hollow bracelets.
- Rings, discs, and 'objets d'appliques'.
- Jets and runners; lumps of metal; portion of mould.
- 'Nombreux débris méconnaissables'.

II AMIENS (le PLAINSEAU), SOMME: Amiens Museum (in part)

- 7 winged axes and fragments.
- 39 socketed axes and fragments.
- 32 fragments of swords.
- 27 socketed spearheads and fragments.
- An anvil; socketed hammer.
- Sickles, gouges, knives, scrapers.
- A portion of horse-bit (? belt-fastener).
- A button; a pin.
- Bracelets, spirals, beads, rings.
- Lumps of copper.
- 'Débris divers'.

* I have to thank Professor H. J. Fleure and Mr O. G. S. Crawford for suggestions and help of various kinds. I am also indebted to Dr Viollier for supplying the illustrations of Swiss swords and to Mr Louis Clarke for the photograph of the Cumberlow hoard from the Cambridge Museum.

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III GRAYS THURROCK, ESSEX : see *Antiquaries Journal*, 1922, II, p. 105.

- 4 winged celts and fragments.
- 33 socketed celts and 71 fragments.
- 15 spearheads or fragments.
- 42 fragments of swords.
- 2 chapes.
- Half of bronze mould ; 4 waste pieces.
- A lump of tin ; 68 lumps of copper.
- 3 socketed knives and a tanged knife ; 9 fragments.
- Tanged chisels.
- A socketed gouge and 5 fragments.
- A socketed hammer and fragments.
- A fragment of sickle ; fragments of bracelets ; halberts.
- A ferrule ; a ring ; 21 miscellaneous fragments.

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Excavation

by COMMANDER NOEL F. WHEELER, R.N. (RETIRED)

Field-Director, Harvard-Boston Expedition, Egypt

OUR only guide to the thoughts and motives of mankind is a correct interpretation of their acts; and when we are dealing with the Past our only guide to their acts lies in a correct interpretation of the results of those acts. These results are visible in their writings, buildings, paintings, and in all the other works of their hands.

Time, with all its attendant destructive agents—war, wear, and wilful destruction—has obscured the evidence considerably; but much still remains, though it may require labour, patience, and careful deduction to secure it.

A man desires a home, builds a house—brick upon brick; he lives in that house, and the presence of implements, utensils, and decorations is evidence of his use of them. The house becomes deserted; the elements throw down its walls, set up decay in the materials, until at last the débris of the years covers it. Then another man, finding a good site, rebuilds there after a different plan; and he shows his differing tastes in the objects he uses and in his methods of using them. The ordinary happenings of life go their round once more within the walls—working, eating, sleeping, birth, death, intrigue, crime, and all the heterogeneous patchwork which goes to make up human existence. An army overthrows the place, fire destroys its share; but, after long ages, an archaeologist comes upon a mound among other mounds, and in the course of his operations he excavates this mound. The final result of his work should be a reconstruction, as complete as possible, of the past history of that house throughout its eventful or uneventful career, and of its occupants. The 'house' may be a cemetery, a fortress, or a tomb—it makes no difference to the main object.

The excavator's work may be clearly divided into six main parts,
(1) The discovery or choice of the site.

He may be influenced in this by knowledge handed down from remote ages, by obvious signs in the present appearance, or by the 'archaeological instinct'; which is really the ability to sum up

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accumulated probabilities and possibilities from a mass of scrappy impressions which would escape the lay observer.

It may be necessary to excavate a site merely on the strength of promising indications, without any absolute knowledge of what is likely to be found there. In this case subsequent events must be made to explain themselves. Where the nature of the site is known, all the attendant questions of supply of labour, living accommodation, attitude of the owners of the land or the authorities, food supply, water, etc., can be considered. The nature of the weather conditions likely to be encountered during the proposed period of excavation is a matter of some importance.

(2) The uncovering of the evidence.

In doing this the utmost care must be taken that no evidence, however trivial it may appear, be destroyed in the process of excavation. This process may take any of the forms intermediate between clearing a few square inches per day with a fine camelhair brush and lifting ten-ton boulders with a winch and tackle.

In the actual process of excavation it is necessary to employ more or less unskilled labour, and continual supervision is therefore essential. The employment of foremen should not take the place of this supervision, and the more direct the dealings of the director with the workmen the better: he is by far the most reliable 'foreman' obtainable. The foreman, if left to his own devices, is apt to develop into a look-out for the men, to spur them on to greater efforts whenever the director appears on the horizon.

Where two or more levels of different ages are superimposed, and it becomes necessary to remove the upper in order to uncover the lower, the top level should be completely uncovered, photographed, drawn to scale, and levelled before a stone of it is destroyed. It is better that it should remain obscuring some older evidence below than that it should be partly or wholly destroyed unrecorded. A very complete photographic record is necessary, but it must not be allowed to take the place of plans and sections to scale, which should be accurate, clear, and adaptable to reproduction in print.

It is important to see that the area over which the débris is to be dumped has first been cleared and recorded. The money spent in Egypt alone in excavating the dump heaps of earlier excavators would endow more than one archaeological institute. No part of the area to be excavated should be neglected: the object of excavation is not to

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search for one definite thing but to record faithfully everything within the area, whatever it may be and however unimportant it may seem at the time. Instances are numerous where the first excavators have, by incomplete work, missed the main significance of the site; and the subsequent clearing of a neglected corner has revealed much. The true importance of an object found bears no relation to its size, cash-value, or beauty: the most uninteresting looking scrap may have more to tell than the rest of the season's digging.

In excavation time is always an object; but, on the other hand, haste is the one thing to be avoided on first arriving on a site, with or without previous knowledge of the place and conditions.

Presuming that the question of living accommodation for the workers has been settled, a thorough inspection of the site is called for. As clear a mental impression of the place as possible should be formed from surface indications before putting pick to work. The general lie of the land will probably be visible in the case of fortresses, town sites, or even cemeteries; and it is at this stage of affairs that aerial photography, if obtainable, may prove of the greatest assistance.

If a light railway is to be used for the removal of the *débris*, the direction and steepness of the gradient of the ground needs studying, and the most suitable area over which to dump should not be chosen without much forethought. A railway gradient should be steep enough to carry the cars with slight braking from the dig to the dump, and to allow of their being easily pushed back by hand. Sharp turns or sudden changes in gradient must be avoided for trouble-free working.

In any case the following considerations should be taken into account when dumping:—Dump over nothing that may need to be visible in the future; reduce the travel of the cars to the minimum; allow for the fact that the line of digging will be continually advancing; avoid unsightly dumps on sites where appearance of the discoveries is likely to be of aesthetic value; search the *débris* sufficiently thoroughly to preclude the possibility of any later excavators considering it worth while to search the dumps.

In forts or town sites the line of advance will clearly be along streets, if any, or parallel to lines of buildings; in buildings, room by room. The walls make the best basis for survey points, owing to their height, mutual visibility, and relative permanence. In cemeteries the line of the work may have to be determined by cutting preliminary trenches to gain more information of the lie of the land than is visible on the surface. In well defined cemeteries an advance on a frontal line

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is best to cover the entire area; but with widely scattered graves, invisible on the surface, this may not be practicable.

At first work will be necessarily slow, and *everything* uncovered should be left undisturbed until the director has inspected it. Later on, when the nature of the work is better known to all taking part in it, things can be speeded up and the diggers will know what to do with each thing uncovered. Records should be kept with the utmost care and completeness at the beginning until the significance of the discoveries is more clear to the workers, when they will get to know just what degree of detail and accuracy is demanded for the different kinds of evidence discovered.

The spirit of that expedition which sets forth in a blaze of self-advertisement and frantic enthusiasm to 'find something'—preferably something sensational—should be suppressed at birth. It is the spirit of the dog searching for a bone—earth, sand and everything flying in all directions in a blind concentration on the bone (which may not be there).

(3) The preservation of the evidence.

The objects or buildings uncovered may require treatment to preserve them before they can be dealt with. Weather, handling, packing, etc., must not be allowed to destroy what the ages have preserved intact hitherto. Expert chemical advice may be needed in this. If the objects can possibly be preserved they should be.

(4) The recording of the evidence.

A system must be used which ensures that the information recorded shall be easily available at short notice, and that it shall be well secured against destruction or confusion through lack of skill in the recorders, through transit, storing, or accident. This system must be simple but infallible—difficult requirements to satisfy in combination.

In recording nothing should be omitted. Every object found should be photographed, drawn to scale, numbered and described with reference to its material, colour, workmanship, place found, by whom and when. If there is any possibility of the object being in its original position of deposit, undisturbed, it should be photographed 'in situ'. It will be found useful to keep approximately the following records:—

- (a) Rough diary of the work day by day, giving descriptions and rough plans of the area cleared daily, objects found, etc.

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- (b) Card index registers of the objects found ; one according to the location, and another according to the nature of the object. Each card should have a scale drawing and full description, date, where found, material, measurements, photo number, registration number (also on object), and notes as to other points of interest. The two indexes to be kept separately to minimize damage by fire, etc.
 - (c) Register of photographs taken, giving time, place, direction, etc. All photographs should have a measure included in the picture to give the scale.
 - (d) Photographic plates and a set of the prints should be kept in numerical order where they can be easily referred to at all times. To be kept separate from one another (the plates from the prints) to minimize risk.
- (5) The interpretation of the evidence.

Here expert knowledge of the particular period, place, etc., is necessary ; and when this is not obtainable within the expedition itself it must be called in from outside. Theories without adequate evidence to support them are worse than valueless, and the former must rest on the latter rather than the reverse. It is very easy when searching for evidence to support a preconceived theory to get some strange and unstable results. It is wise not to be too precipitate in the formation of theories. By waiting until all the evidence is uncovered one is certain not to have the pet theories of one day overthrown by the excavations of the next. It is wise also to take into consideration everything that has ever been written on the subject in hand. One's 'probabilities' may be cancelled by some fact unearthed previously and inadequately recorded in some obscure publication. Judgments can only be made on the sum total of the evidence, one's own and that of all others who have investigated the subject.

- (6) The publication of the information found.

It is obvious that, so long as the information is retained in the hands and the memory of the excavator, the purpose of archaeology is but half served. Until the full information is in print the excavator cannot sit back with the feeling that a good piece of work is finished.

Ease of reference is one of the most necessary qualifications for a

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publication; clarity of explanation and argument comes next in importance. The full data on which theories or deductions have been made should be given concisely, in order that the reader may form his own conclusions on the evidence—which conclusions are by no means bound to concur with those of the writer. These data should not fill page upon page with meaningless tabulation of numbers and letters, for the interpretation of which a continual reference back and forth in the book is necessary: the book is intended to be *read* and should not require to be fed into a calculating machine.

Plans should be easily readable: enlargement or reduction for printing will alter considerably the legibility of lines and figures, and this should be allowed for in the drawing.

N.B.—The above is merely intended as an outline, of the most general nature, of excavation in the broadest sense. According to the locality and the individual peculiarities of any particular work, so will the details need amplification, modification, or alteration, to suit the conditions. Experience in excavation in Egypt has formed the guide for this article, but the outline will be found applicable to most excavation work.

Prehistoric Flint Sickles

by E. CECIL CURWEN

SO much interest was aroused by my recent paper on 'Prehistoric Agriculture' in vol. 1 of *ANTIQUITY*, that it may be worth while to expand and add to what was there said on the subject of flint sickles. The most comprehensive study of the subject comes from the pen of M. André Vayson de Pradenne¹ whose paper must first be reviewed.

The author sets out by describing an almost perfect example of a flint sickle, consisting of five carefully worked flakes set in an L-shaped wooden mount, discovered some years ago in a peat-bog at the foot of the hill of Solferino, near the Lago di Garda in North Italy (fig. 1). After describing its characteristics and discussing its purpose, he reviews all the other known specimens from Europe and Africa, and finally discusses their types and distribution.

The Solferino specimen is attributed to the Copper Age, having been found at the same level as a copper palstave and some flint arrow-heads, and below the level of an early bronze dagger. In fact the only remains found in those bogs belong to that period, the full Bronze Age being unrepresented.

The sickle consists of an L-shaped piece of wood with a longitudinal groove in which a row of five flints have been cemented. The tip of the handle is missing, and the body was broken in two while being carelessly dried by the finder, but accurate reconstruction has been possible. The wood has been cut from the fork of a tree so that the grain runs longitudinally both in the blade and in the handle. The latter is slightly inclined to the plane of the blade, as is that of a modern scythe, and the author regards this as a sign that the implement was intended for cutting stalks close to the ground, and therefore possibly for mowing hay rather than for cutting corn.

Each flint has been worked to fit in with its neighbours, the ends being bevelled to fit a corresponding bevel on the next flint. The cutting

¹ 'Faucille préhistorique de Solferino', *L'Anthropologie* (1919) XXIX, 393-422.

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edges of the five 'teeth' form a perfectly continuous curve. There is no polish on them, but they are patinated white. The 'teeth' are of three types, viz., those for each of the two ends of the row, and the intermediate ones. These three types are distinguishable among the sickle-flints found out of their setting in the Italian lake-dwellings and in Egypt.

The flints project not more than 12 mm. out of the groove in which they have been cemented with a brown resinous cement. The walls on either side of the groove are 2-4 mm. thick.

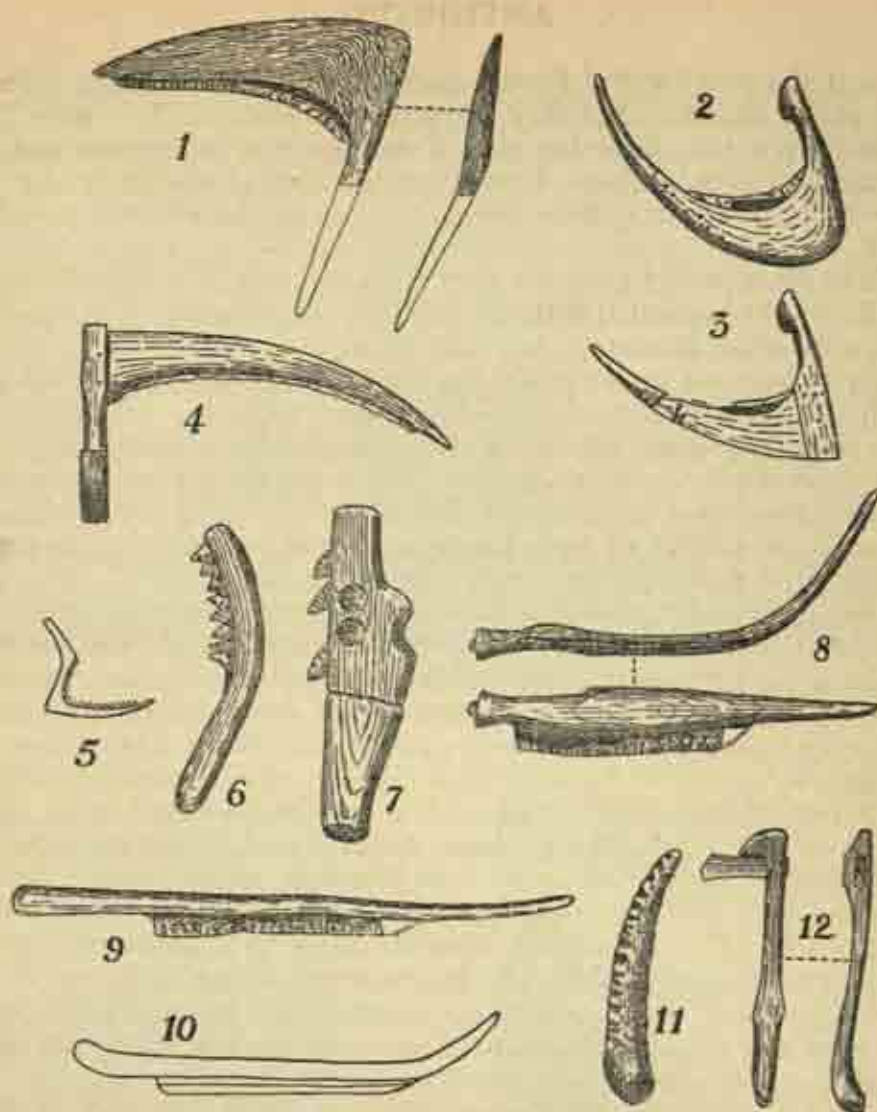
At Polada was found another specimen which differs from the last chiefly in the fact that the handle lies in one straight line with the blade when seen in profile, but is bent to an angle of about 135° from the plane in which the teeth lie (fig. 8). This latter gives it the appearance of having served as a scythe rather than as a sickle, just as in the Solferino example. In respect of their dimensions, and the shape and mode of insertion of the flints, these two sickles are similar.

Polada has also yielded another similar specimen from which the teeth have been lost, and fragments of a third, much warped and decayed.

Flint teeth, precisely similar to those described above, are numerous in the Italian lake-villages, and have usually been described as saws. Others are similar but larger, with ends not trimmed to fit in with their neighbours, and these have probably been mounted singly as knives. Flakes worked on both faces are peculiar to the lake-dwellings; those worked on one face only are common throughout Italy, and are regarded by the author as an older and more primitive type. Each type has probably been used both for 'knife-saws' and sickles. The author suggests that if the ends have not been trimmed to articulate with other flints, they must probably not be regarded as sickle-flints. This, however, seems to be too sweeping a judgment, for the highly developed sickles of Solferino and Polada must have had an evolution from more primitive beginnings.

With regard to the question of polish on the cutting edge of these flints, M. André Vayson is at variance with Mr Spurrell,² for he says that polish is neither necessary nor sufficient as a criterion of use. The Solferino specimen had no lustre because the white patina has, he considers, destroyed it. Moreover he has carried out experiments which show that, contrary to Mr Spurrell's findings, the sawing of wood polishes flint just as much as the cutting of corn or grass.

² *Arch. Journ.* XLIX, 53.



FIGS. 1-12

REFERENCES TO FIGURES

- | | |
|--|---|
| 1. Solferino (restored: after Vayson) | 7. Fenil, Lac de Bienne (after Vayson) |
| 2. Kahun, Egypt, 12th dynasty (Sir Flinders Petrie) | 8. Polada (after Munro) |
| 3. Kahun, 17th dynasty (Petrie) | 9. Fayum, Egypt (Miss G. Caton-Thompson) |
| 4. Acebuchal, Spain (after Vayson) | 10. Straight sickle engraved on dolmen of Ile-Longue, Brittany (after Vayson) |
| 5. Triangular-toothed sickle, from inscription at Meidum, Egypt, 3rd dynasty (after de Morgan) | 11. Yarmouth (after Evans) |
| 6. Cueva de los Murcielagos, Spain (after Gougota) | 12. Stenild, Jutland (after Déchelette) |

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A different kind of sickle has also been found in the Swiss lakes at Fenil (lac de Biemme), consisting of a straight handle with more or less triangular flint teeth set in a groove, and each projecting independently—quite an effective instrument for cutting corn (fig. 7).

The author then describes Sir Flinders Petrie's two Egyptian sickles from Kahun (12th and 17th dynasties), which closely resemble the Solferino specimen in most particulars (figs. 2 and 3). Sickle-flints, he says, are numerous in the sites of the early dynasties, but rare or absent on purely neolithic sites. The serrations may be coarse, fine or irregular, and the working may be on one or both faces. Polish is common, and traces of cement are frequently seen.

Triangular flints are also found, analogous to those of the Fenil sickle. A sickle bearing triangular teeth is actually depicted on a third dynasty inscription at Meidum (fig. 5).

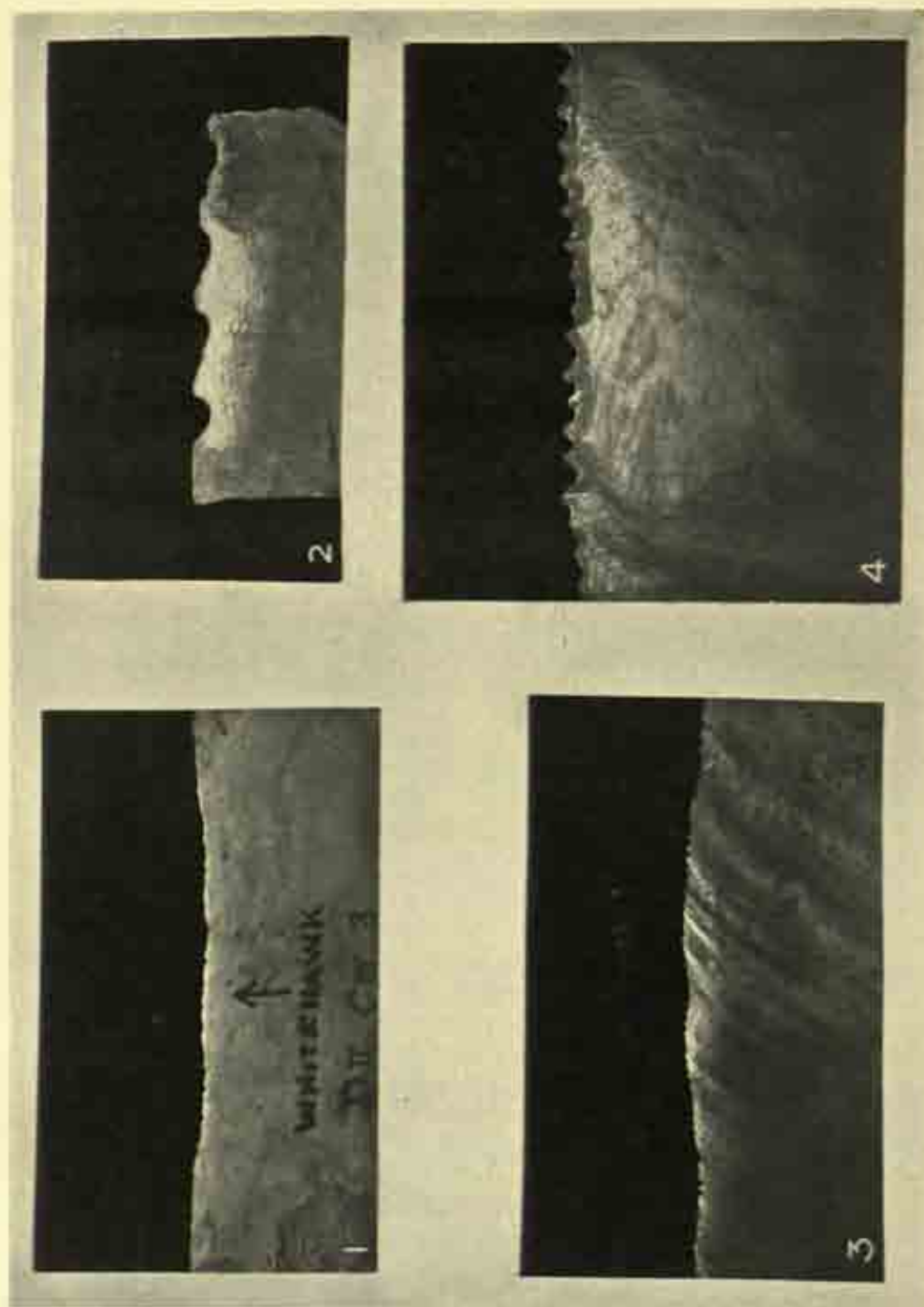
Similar sickle-flints are abundant in Chaldea and Palestine where, according to Sir Flinders Petrie, they continued in use till 1350 B.C. or even later; and they are also found in North Africa and Morocco.

M. Vayson quotes M. Cartailhac as stating that such flints are found along the northern shore of the Mediterranean from Spain to Asia. Numbers, he says, have been found in the neighbourhood of Almeria (Spain), in the ruins of ancient fortresses, where they are exclusively found in the dwellings of grain-merchants and millers—dwellings distinguished by numerous querns and jars containing barley and flour. With these were found small collections of these sickle-flints. Similar specimens come from Therasia and Santorin, also from the whole of Greece, and from most of the ancient levels at Troy.

From Acebuchal in Spain (Seville) comes a reconstructed wooden sickle of the Solferino type, with numerous small rectangular teeth with coarse serrations, and with ends not so carefully shaped as in the Italian and Egyptian examples (fig. 4). The frame is made of two pieces of wood, a blade and a handle, fastened together at right angles. This specimen is referred to the Copper Age.

From Cueva de los Murcielagos (Spain) comes another specimen, very slightly curved, and having eight triangular teeth (fig. 6).

In France are found neolithic flakes with polished serrated edges, but the ends are not trimmed to fit one another, and they are very rare. They are not flat, but curved, and therefore the author considers that they cannot have been used in sickles. Much more abundant in late neolithic sites are triangular flints, of which some, being sharply pointed and isosceles, might be arrowheads, but others have no point and are



1. Serrated flake from Whitehawk mesolithic camp (Brighton), showing narrow band of luster probably produced by cutting wood (this flake has white patina)
 2. Sickle-flake from Tel-el-Douei, near Uq, Iraq, showing broad band of luster produced by cutting reed
 3. Modern serrated flake showing narrow band of luster experimentally produced by cutting wood
 4. Modern serrated flake showing broad band of luster experimentally produced by cutting straw

Fig. C. H. Caddell

All to same scale, approx. 10x

PREHISTORIC FLINT SICKLES

asymmetrical (scalene), resembling the teeth of the Fenil and Murcielagos sickles.

In Britain both the Solferino type of sickle-flint and the triangular type are found, and in addition to these the long curved flint-blades similar to the Scandinavian type described below.

In Scandinavian countries the rectangular and triangular types are rare or absent. Here the characteristic sickle was a long, curved blade, finely worked all over, and often showing polish on the edge (fig. 11). Their method of hafting is probably illustrated by the discovery at Stenild (Jutland) of an unworked flake fixed at right angles into the end of a straight wooden handle (fig. 12). The shape of the Scandinavian flint sickle is identical with that of the earliest bronze sickles of Central Europe.

M. André Vayson summarizes his conclusions to the following effect :

(1) Flint sickles were used at any rate from the Copper Age to the Mycenaean period (2000-1000 B.C.).

(2) Two types of frame were in use, the straight, and the L-shaped, the latter resembling the lower jaw-bone of an animal. In fact, according to Maspero, the ancient Egyptian word for ' jaw-bone ' signifies a ' pair of sickles '.

(3) The sickle-flints were of 3 main types :—(a) rectangular ; (b) triangular ; (c) long, curved blades. The first two are common to the Swiss and Italian lakes, Egypt, Spain, Central Europe and Britain. The third is found chiefly in Scandinavia, but also in Britain and Central Europe, and is analogous in form and size to the earliest bronze sickles.

Probably the simple serrated flakes and the triangular teeth are more primitive than the well-worked rectangular flints or the large curved blades.

In another communication¹ M. Vayson draws attention to what is evidently the representation of a straight-handled flint sickle on the dolmen of Ile-Longue in Brittany (fig. 10), and compares it with a remarkably fine example (fig. 9) recently discovered by Miss G. Caton-Thompson in the north of the Fayum, and figured in *ANTIQUITY*, I, 336. The similarity is striking and convincing.

So valuable a paper as M. Vayson's is worth recording in English,

¹ Déchelette, *Âge du Bronze*, 267.

² *Bull. de la Soc. Préhist. française*, xxv, 290-4.

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even if only in the form of an abstract, and there is little to add to it except to discuss the vexed but important question of the polish accruing to the flints as a result of use.

Many, but not all, of the sickle-flints found in Egypt, Palestine and Mesopotamia have a wide band of lustre extending along both sides of the serrated edge to a depth of a quarter of an inch or more (see plate, no. 2); in fact the depth of the band has only been limited by the cement which once fixed the flint in its wooden frame. These sickle-blades are commonly made of chert and usually have coarse serrations.

Quite a different kind of lustre occurs on many of the finely serrated flakes which are found in large numbers on the sites of English neolithic camps, as, for instance, at Windmill Hill (Avebury), the Trundle (Goodwood), and Whitehawk (Brighton). These flakes are generally patinated white and have about 25 to 30 serrations to the inch, each notch having been pressed out from one and the same face of the flake. The lustre, which is to be seen on less than half the specimens, consists of a very narrow band of bright polish which is confined to the actual serrations on the plain face (see plate, no. 1).

Quite clearly these two kinds of lustre have not been produced by the same agency, and the determination of this point should go a long way towards solving the problem of the use of serrated flakes found out of their original setting.

Experiments carried out in the past with a view to solving this problem have not entirely succeeded. Mr Spurrell¹ found that corn was the only substance the cutting of which produced a polish on the flint; M. Vayson, as noted above, found that both corn and wood were capable of producing this effect, but he records no effort at differentiating them. In order to investigate the matter afresh the present writer obtained a series of newly made serrated flakes of black flint from Fred Snare of Brandon, the serrations being coarse in some and fine in others. Separate flakes were used for cutting wood, dry bones, and corn-stalks in the form of bottle-straws.

(1) WOOD.—It was impossible to cut into the wood to a greater depth than about $\frac{1}{8}$ inch owing to the inevitable v-section of the flake. With this limitation flakes with fine serrations bit into the wood as readily as a sharp steel saw. After spending three-quarters of an hour in making a series of nicks in sticks and oak logs the degree of lustre shown in photograph no. 3 (see plate) was attained. This is quite

¹ *Arch. Journ.* XLIX, 53.

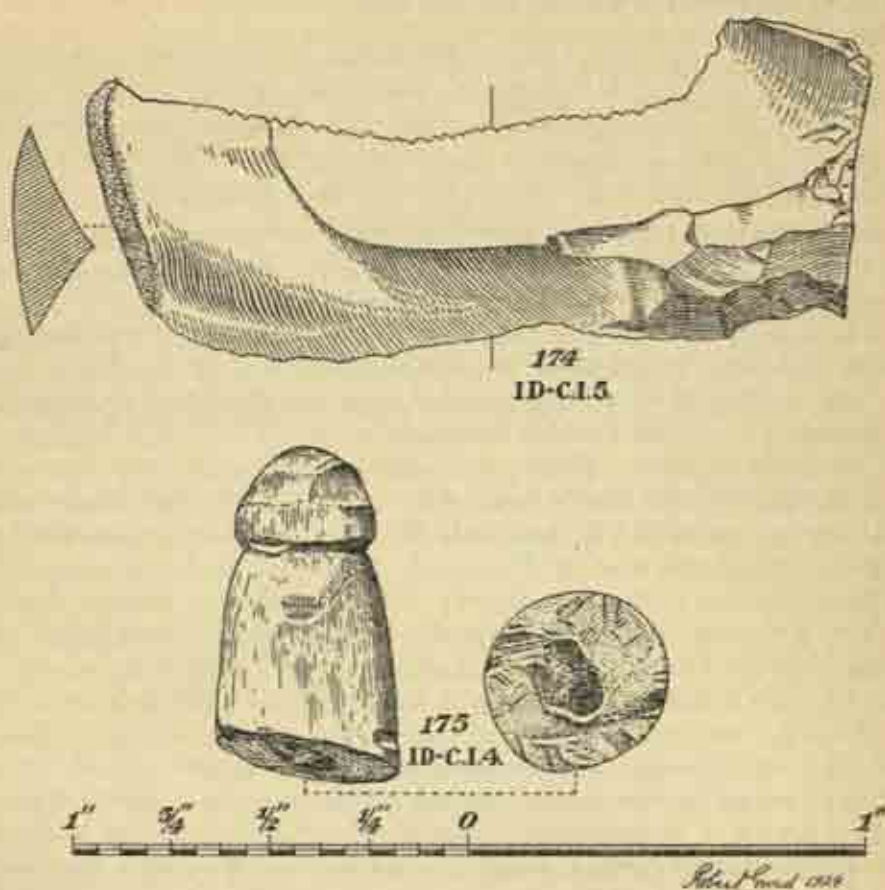


FIG. 13.

Flint saw, and a neolithic carved bone object that has been severed by means
of a flint saw (from the Trundle, Goodwood)
(After *Somers Arch. Coll.* LXX)

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comparable to the polish in no. 1, but extends rather further from the edge, probably because this flake was used during part of the time for making oblique or sloping cuts.

(2) BONE.—Prolonged efforts failed to produce an appreciable degree of lustre when sawing old dry bones.

(3) STRAW.—Half an hour spent cutting bottle-straws up into little bits produced the degree of lustre shown in photograph no. 4 (see plate). It is a broad and diffuse band like that in no. 2, and it was evident that the greater brilliancy of polish in the latter case must have been the result of a great deal of prolonged hard work in reaping corn.

It seems fairly certain, therefore, that the narrow band of lustre seen in no. 1 results from nicking wood, while the broad band in no. 2 comes from cutting corn. In other words, the one is a saw and the other is a sickle-flint. The fact that polish is produced by both substances is due to the presence of organic silica in both wood and straw.

The nicking of wood by a serrated flake was doubtless a preliminary to breaking it. If such a tool was used on wood it would certainly be used on bone as well. During excavations at the Trundle the writer found in the neolithic level a beautifully carved little bone object, which must have been shaped with flint tools (fig. 13). It had been severed from the end of a bone by sawing all round to a depth of about $\frac{1}{4}$ inch and then snapping it off—a striking testimony to the use of flint saws on bone.

The writer has not so far been able to trace any serrated flakes from Britain bearing the kind of gloss that is produced by cutting corn. M. Vayson thinks that the patination which many of the flints have undergone has destroyed any lustre that may have once existed. This is open to question; at any rate the extremely brilliant lustre caused by the friction of wood has not been impaired by the patination of the flints on which it occurs. A degree of lustre likely to survive is not, however, easily produced by cutting straw; moreover our flint may not polish so easily as the chert of Palestine and Egypt, so that one may be fairly safe in assuming that lustre is not essential as evidence that a given flint formed part of a sickle, especially as it does not occur on many undoubted sickle-flints found abroad in their original wooden frames.

These observations are made, not so much as expressing settled opinions, as with a view to elicit observations from those who have the handling of large numbers of flint implements, in the hope that more definite information may thereby be obtained.

PLATE I



LYNCHETS AND SUNKEN TRACKS ON SOUTHEASTERN SLOPES OF BUTSER HILL; TAKEN IN SNOW
By permission of the Air Council, Crown copyright reserved

Butser Hill

by STUART PIGGOTT

Investigator, Royal Commission on Ancient Monuments in Wales and Monmouthshire

THE traveller from London to Portsmouth by road, as he leaves Petersfield (fifty miles from his starting point and twenty from his objective) sees before him, above the copses and hopfields, a great green hill like the overturned hull of some gigantic ship. Looking southwards, he sees to the east the line of the Sussex Downs and to the west the less definite Hampshire ridge, and between them this majestic hill—Butser. Approaching nearer, the spurs which run out from the main mass show clearly the sunken tracks that wind up to the high level plateau above; and through the deep road-cutting across the col connecting Butser with Wardown on the east, a green land of ridges and hollows, of downs studded with juniper and thorn and of coombes with their sides covered with yew and whitebeam is entered. A yard from the road and there is untouched downland where one may walk all day and see no one but the occasional desecrating workman who strips Butser of its turf so that the suburbs of Southsea may have tennis courts.

Now should our traveller have the good fortune not only to see Butser from the ground, but from the air, he would then see how the line of the Hampshire chalk ridge, running eastwards from Old Winchester Hill, here turns north, and as it turns, becomes Butser. From the valley Butser may resemble a vast overturned boat; from above it is a hand, joined by an arm of narrow high ground to the main east-west line of the ridge. The back of the hand is the nearly level top of Butser, gently sloping away from the central height of 889 feet (the highest point of these downs), and the fingers and thumb are the projecting spurs separated by deep coombes. To the east, Wardown rises to a height of 802 feet, and from there the ridge swings gently southeast to resume the general line in the Harting Downs.

Such a hill as Butser would obviously have attracted the attention of primitive man as a desirable place for residence, cultivation or burial; and we might expect to find evidence of one or more of these.

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We shall see that there are traces of use in all these ways, and in more than one period.

The general plan (fig. 1) of the hill shows that the antiquities of Butser divide themselves into five main groups: the trackways, the entrenchments across the spurs, the lynchets, the bivallate ditches, and the barrows and other mounds. While these groups are occasionally inter-linked, and explain each other a little, it will be convenient to study them first in detail under the above headings.

THE TRACKWAYS

Butser occupies a commanding position among the hills of the South Downs, and this is well brought out by the numerous tracks which converge on and radiate from it.

First in importance is the track which links the almost detached massif of the hill itself with the downs to the south. This roadway, which runs along the ridge of Hillhampton Down, is part of the great ridgeway which can be followed west to Winchester and which on the eastwards runs along the whole length of the Sussex Downs. Absolute dating is of course impossible; but there can be no doubt that this ridgeway is of great antiquity.

When the track reaches the neck of Butser near the main entrenchment on the south spur, it sends off several branches; but the main track continues east along the edge of the plateau until, on the spur immediately over the modern road-cutting, it again becomes involved in a jumble of sunken tracks, some of them mere duplications, others contributory ways. On the western slopes of Wardown, across the col, the track ascends by a slight diagonal terrace to the top, and is there continued (with breaks) to Harting and beyond.

These sunken tracks on the eastern spur are a striking feature as seen from the modern high-road; they consist of roughly parallel deep v-shaped trenches curving up over the shoulder of the hill, and to those unacquainted with earthworks they might well appear to have been deliberately cut (plates I and II). They are however the unintentional result of traffic negotiating a steep slope.

The history of such sunken tracks is roughly as follows. A single trackway is originally started on the hillside. The turf is soon broken up by the hoofs of horses or the surface grooved by cartwheels, and once the protecting mantle of turf is removed, the chalk rapidly wears away; the frosts break it up and the rain soon converts the trackway into a slippery gully of chalk mud. Perhaps this mud is cleared out

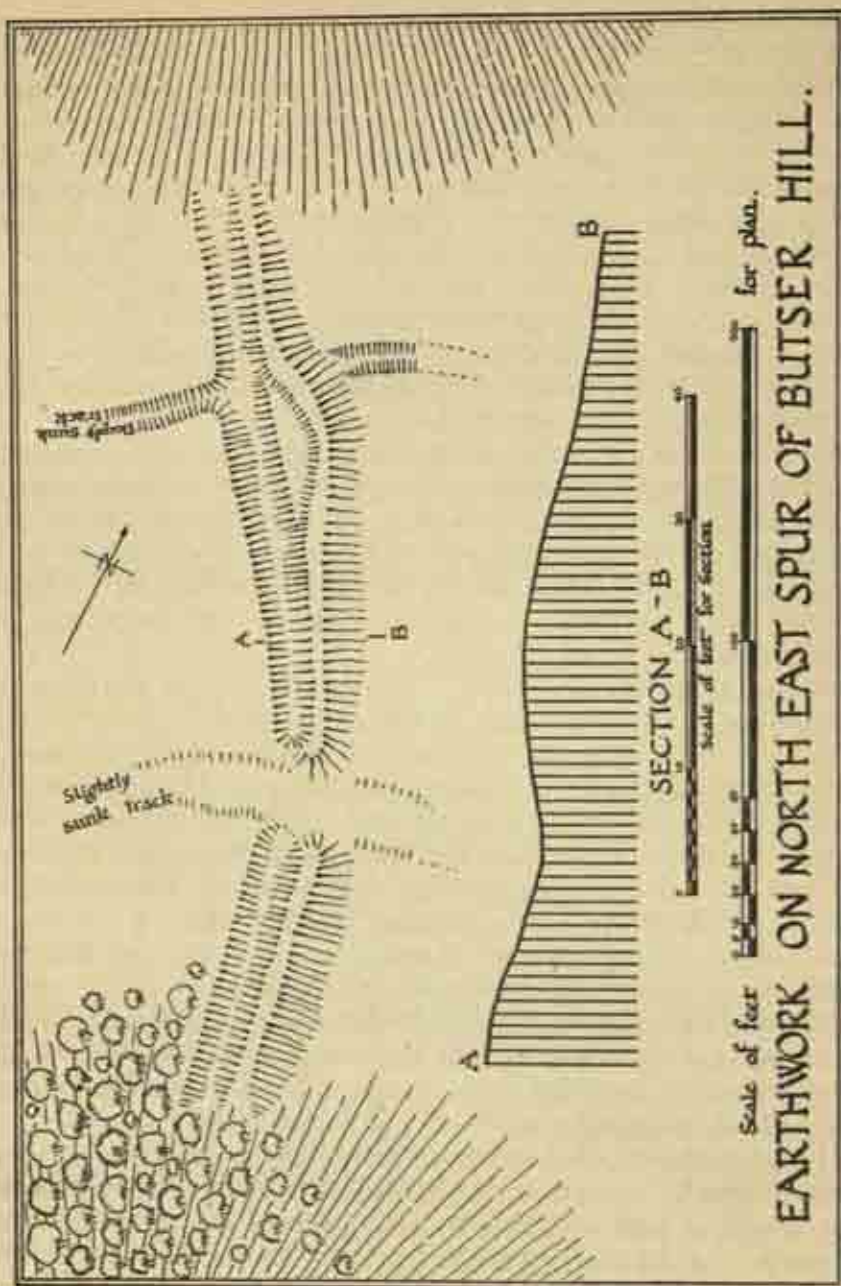


FIG. 2

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and thrown out on one side (making a deceptive bank to puzzle the unwary field archaeologist). Another winter and the track is sunk still deeper, until at last it becomes impracticable. Then a parallel course, probably further downhill, is followed. This has a history like the first and so yet another is formed. The older tracks gradually become grass-grown again and may perhaps be re-used, but the inevitable result is a series of roughly parallel trenches scoring the hillside.

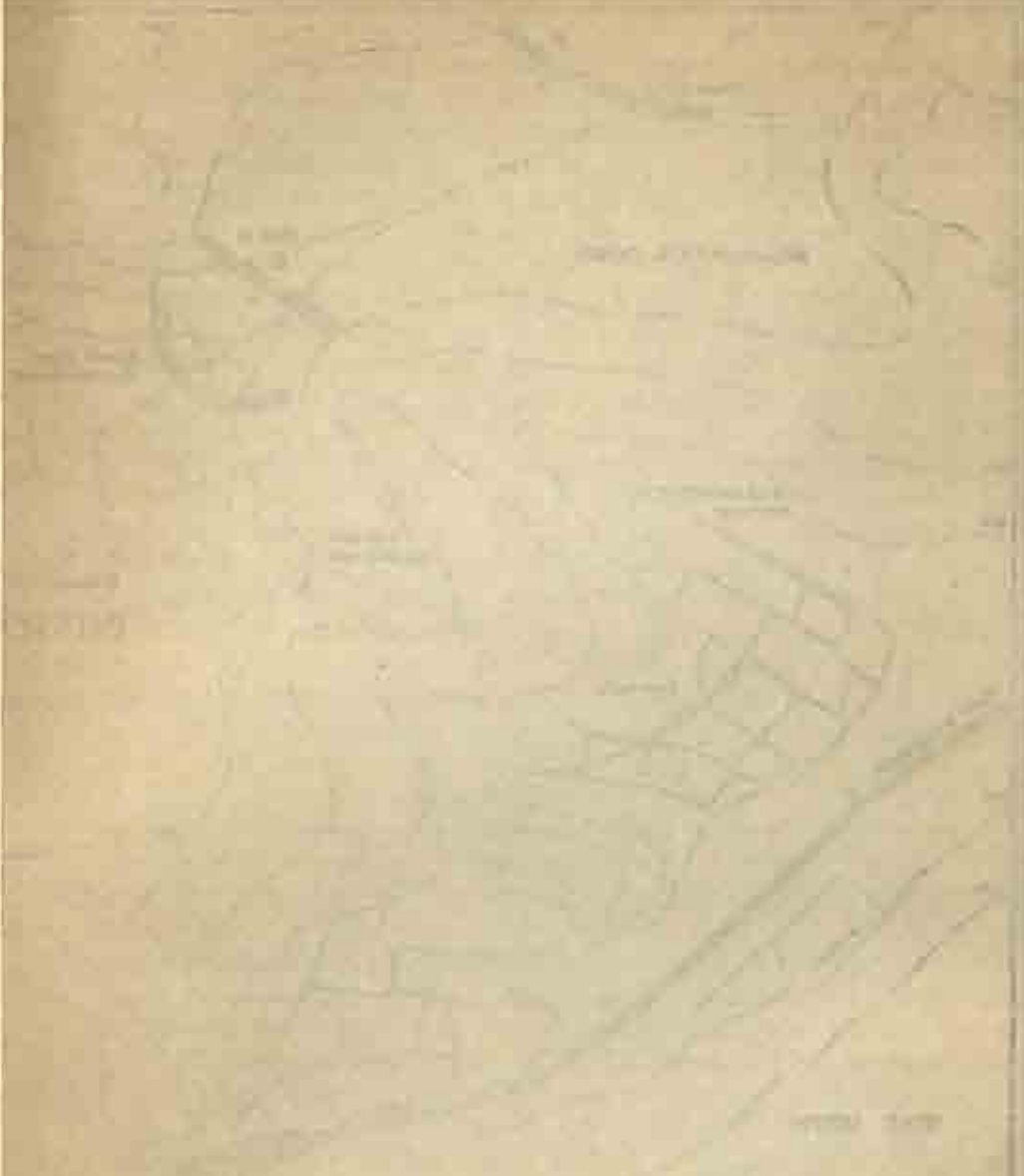
Sunken tracks in groups such as these on Butser are quite common on the Downs, and while some may be very ancient, many (especially the broader ones resulting from wheeled traffic) are comparatively modern. A relative date is given to the Butser examples by the fact that they cut through a large lynchet-bank running parallel to the modern main-road, thus showing that they are later than that bank. We do not know the exact date of the large group of ancient fields of which this bank forms part; but they are certainly not later than the Roman period and are probably earlier. It is likely, as Dr Williams-Freeman has suggested, that these sunken tracks are due in great part to the carting of flints from the hill-top (still scarred with irregular shallow pits) when the modern road was being built some two generations ago.

That the ridgeway between these tracks and the south spur entrenchment was an important road at least until the 17th century is shown by the bounds of the manor of East Meon taken in 1647 (printed in *Procs. Hampshire Field Club*, ix, 413). The bounds are running, as usual, with the sun, and proceed from the Buriton direction; 'and so abutting upon the Manor of Berriton and Maple Durham upon the southeast unto a great ash standing on the side of Butser Hill, and so by the highway leading to two great ditches cast up at the top of Butser Hill'. The 'ditches' in question can only be the main entrenchment and ditch II (see main plan of Butser).

Trackways run up the three northerly spurs to join the main ridgeway; there being one up the unnamed spur south of Rake Bottom, another up Ramsdean Down, and a third up the spur (above Round Copse), which has been called the Northeast Spur. This last trackway is the most important of the three and in all probability the most ancient. From near Round Copse, on the rounded knoll locally called Little Butser, a deeply sunk track winds up the nose of the spur, to die out on the level. Before reaching the plateau it is joined by a fainter track from the southeast. Just above this junction there runs from scarp to scarp the curious earthwork named the Northeast Spur entrenchment. This will be fully



THE HOUSE OF THE FUTURE
 PETERFIELD, N.H.



THE HOUSE OF THE FUTURE
 PETERFIELD, N.H.

BUTSER HILL

described in its place; here we are only concerned with its relation to the sunken track and its branch. The track is cut through by the ditch of the entrenchment and obliterated by its bank; the branch cuts through the bank and ditch. Clearly the main sunken track is older than the entrenchment, the branch contemporary or later.

The date of the entrenchment is not known, but the type to which it belongs has early associations and can hardly be later than the Early Iron Age at the latest. The track must already have been in existence for some time before the construction of the entrenchment, to allow for its depth, and it must therefore be regarded as an indubitably ancient roadway leading into the valley.

On the spur the track points northwards towards Petersfield, and its line is continued from the foot of Little Butser by the lane running north to Bopeep Copse; from there it may have turned eastwards through the hamlet of Weston. This course keeps above the 300-foot contour line, but between Weston and Petersfield there is low-lying land to be crossed. A lane from Weston running northeastwards is a deep hollow-way where it drops down the slope near the 300-foot contour, and this hollowing can only be the result of traffic far more continuous than the present almost disused footpath warrants. North of this point the track may have joined the present Portsmouth road near the Causeway, or followed the footpath across the fields from Weston to the western edge of Petersfield at the Borough.

An ancient road leading directly into the low-lying and somewhat marshy land round Petersfield might appear at variance with the usual concentration of prehistoric remains on the high dry uplands; but there is the very interesting and indisputable fact that on Petersfield Heath is a large group of round barrows, disc and bowl, and it is unlikely that the settlement to which these belonged was situated three miles away on the chalk ridge. Butser, too, has its round barrows, and this track may well be as old as the Bronze Age, joining the two settlements.

THE SPUR ENTRENCHMENTS

Between the spurs of the Butser plateau there are deep narrow coombes running back into the hill, with steep and sometimes almost precipitous sides. The spurs provide the only easy access to the hill-top from the valley, and any attempt at fortifying the plateau, short of constructing a complete hill-fort on the top, would naturally lead to the construction of banks and ditches across the spurs from scarp to scarp, thereby cutting off these ways of approach.

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Something of this kind seems to have been attempted, but was carried out incompletely and in unusual ways. The most vulnerable point is where Butser is joined to Hillhampton Down by a narrow level neck, between two very steep coombes. Across this neck is constructed the main, or south spur entrenchment. (This is described fully below). On the spur to the east of this earthwork (the southeast spur) a slight irregular bank and ditch have been constructed across the root of the spur, in two sections with a gap of thirty yards between them. The bank is about 3 ft. 6 in. above the bottom of the ditch and the overall measurement is some 30 to 40 feet. The whole earthwork is mutilated by flint digging.

Only two of the other five spurs have entrenchments across them: the spur above Round Copse (the northeast spur) and that south of Rake Bottom (the southwest spur).

The northeast spur has been described above, but not the earthwork upon it. The most striking feature of the entrenchment (fig. 2), which cuts across its root, is that its ditch is on the *up-hill* (south) side; and, if it is to be regarded as a part of the defences of Butser, it must be supposed that the bank faced the attacking force. But from what we know of the principles of prehistoric fortification we may say that it was an axiom always to be above one's enemy—on a bank with a ditch facing towards him. It is difficult then to regard this earthwork as defensive. Another curious feature of its construction is that at one point the bank swings out from the ditch in a crescent, leaving a semi-circular berm of undisturbed ground between its crest and the lip of the ditch.¹ It has already been noted that this entrenchment cuts across a pre-existing track which comes up the spur.

The southwest spur of Butser is traversed by two precisely similar earthworks, with an interval of some 100 yards between them. Their profile is the same as that of the entrenchment on the northeast spur—the ditch averaging 3 ft. 6 ins. below the bank and the overall width being some 50 ft. Here again the ditch is on the *up-hill* side. The lower of the two entrenchments appears to be discontinuous or mutilated, and on the higher one there are remains of an upper bank. What appears to be a lynchet bank joins this at right angles on its south end.

The purpose of this type of entrenchment is very obscure. Dr Cecil Curwen, in describing similar earthworks on Bow Hill, near

¹ This peculiarity is paralleled in a similar earthwork in Wilts., near Burcombe Punch Bowl. See Heywood Sumner, *Earthworks of Cranborne Chase*, plan xxxv, and p. 63.

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Chichester,² draws attention to their association, there and on Butser, with Bronze Age barrows, bivallate ditches of the 'covered way' type, and a water-hole. Somewhat similar associations may be cited from Wiltshire: two such earthworks near Burcombe Punch Bowl with a round barrow near,³ and one on Buxbury Hill near the bivallate ditch known as 'Row ditch'.⁴

Another possible explanation is suggested by the presence of two such ditches on spurs near the Trundle—a refortified Neolithic camp; while the flint-mines on Bow Hill and the long barrows on Stoughton Down nearby should be noted. As we shall see, there is some reason to suppose that on Butser there is a refortified Neolithic earthwork.

All these associations, of course, *prove* nothing, and give no clue at all to the use of the earthworks in question. The writer's suggestion is that they belong to the same period (or periods) as the bivallate ditches, and that their use was the same as the presumed use of these.

THE MAIN ENTRENCHMENT

The southeastern spur of Butser Hill unites the main mass of the hill to the level ground of Hillhampton Down by means of a narrow neck, and it is across this neck, at the Butser end, that the main entrenchment of the hill was constructed. In plan it is markedly convex towards Butser and presents a concave face on the southern (ditch) side. As Dr Williams-Freeman has pointed out,⁵ this apparent weakness is really a sound adaptation of the plan to the lie of the land. On the ground the concavity of the plan is scarcely apparent.

The entrenchment (fig. 3 and pl. III) consists of a single bank and ditch running in a general NW-SE direction between the two 700-foot contours. Both bank and ditch are very irregular and are broken through at three points by trackways: one of these, the most easterly, represents the main ridgeway of the South Downs. The greater part of the entrenchment has its ditch separated from its bank by a wide berm, some 16 feet wide at its widest. The ditch, 30 feet across on an average, is most irregular, and has been deepened at frequent intervals into unequal troughs and hollows, from 4 to 5 feet deep. A shallow ditch runs continuous with the bank except at the three

² *Prehistoric Sussex*, 1929, pp. 140-1.

³ Heywood Sumner, *op. cit.*

⁴ Heywood Sumner, plan xxxvi.

⁵ *Field Archaeology of Hampshire*, p. 273.

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breaches mentioned. Where the ditch is in its original state, forming apparent causeways between these deepenings, there are corresponding dips in the crest of the rampart. The impression given by a study of the earthwork on the ground is that it is a construction of two periods. In its original state it appears to have consisted of a bank and ditch running from scarp to scarp in four straight stretches, each change of direction being marked by a break in the ditch and probably also in the rampart. At some subsequent period, when the rampart had become denuded and the ditch silted up to a considerable extent, an attempt was made to refortify the site by digging out the silting from the ditch and piling it up on the old rampart. The present height of this rampart above the bottom of the ditch is about 13 feet, and it is 5 feet above the ground level to the north. Perhaps men were employed in gangs to dig out sections with a view to clearing away the 'causeways' afterwards, but everything points to hurried and unfinished work. The irregular excavations, the consequently uneven rampart, and the berm all indicate a hasty temporary strengthening of an old entrenchment.

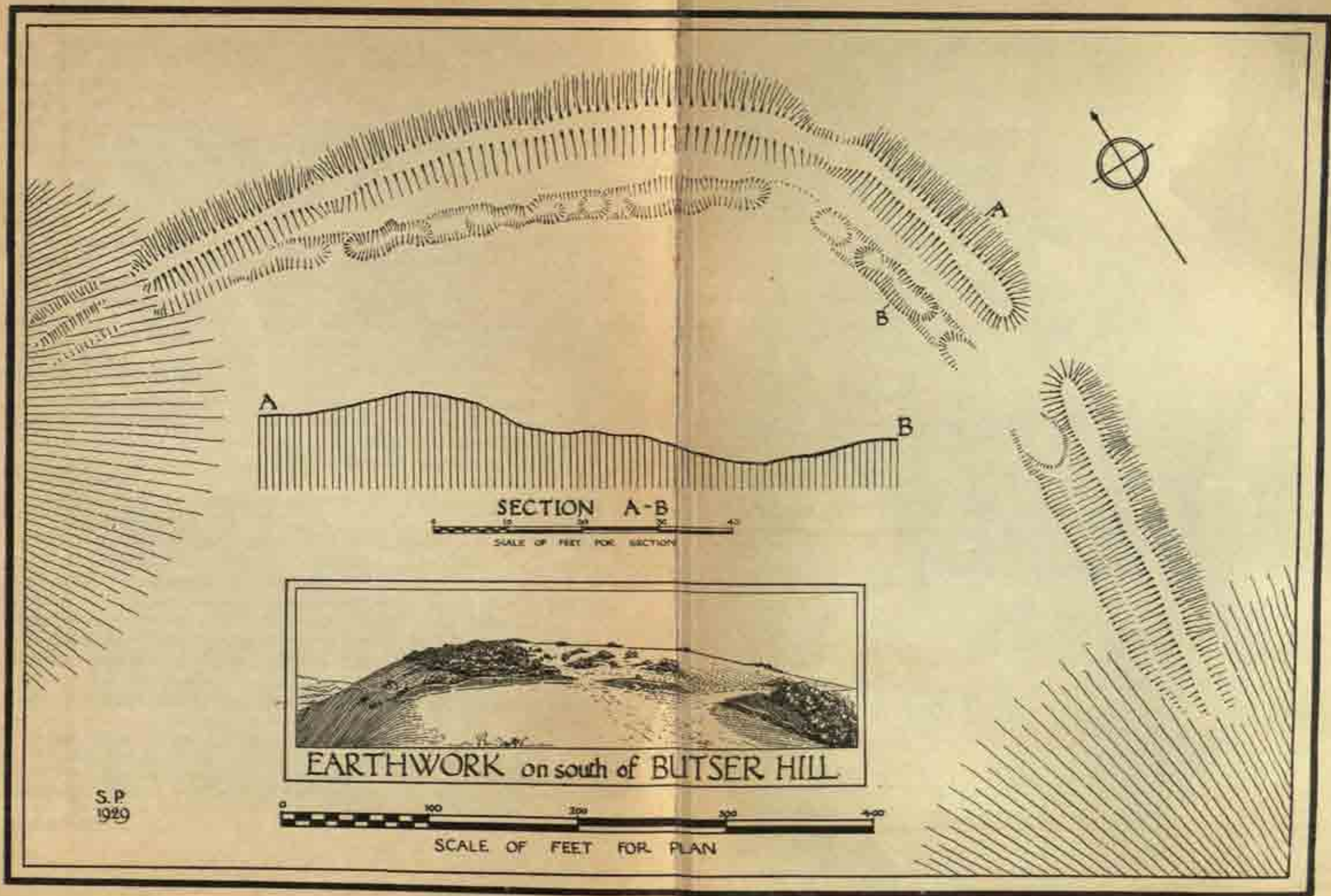
The question naturally arises as to the actual dates of these two periods of construction. Without excavation we cannot be certain, but a tentative suggestion may be advanced, supported by such data as are available.

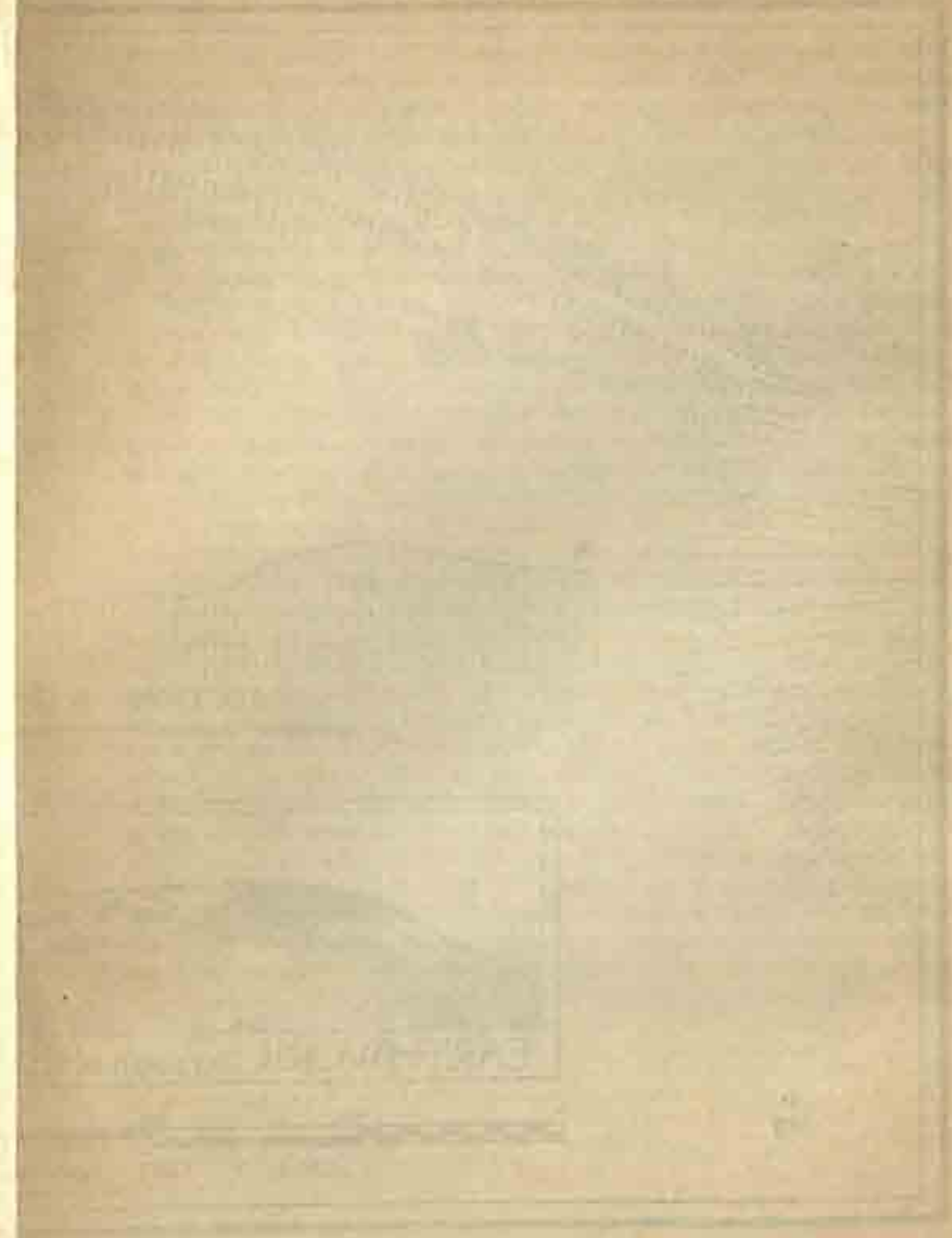
The earliest period of earthwork construction in England appears to have been towards the close of the New Stone Age, when entrenchments of the 'interrupted ditch' or causeway type were constructed. They consisted of one or more enclosing banks and ditches, the latter broken at frequent intervals by causeways of untouched soil. The type example of this construction is the famous site at Windmill Hill, Avebury, which is being excavated by Mr Alexander Keiller.

'Causewayed' earthworks which take advantage of natural defensive features have already been described by Dr Curwen in *ANTIQUITY*, IV, p. 22 ff. The camp on Knap Hill, Wilts, partakes of the nature of a promontory fort.⁶ A similar earthwork, though unproved by excavation, is recorded from Dinas, Llanidloes without, Montgomeryshire.⁷ A modified Neolithic earthwork of this type was discovered on low-lying land near Abingdon, Berks., running across

⁶ *Wilts. Arch. Mag.*, XXXVII, 42-65.

⁷ *Sussex Arch. Coll.*, LXX, 72.





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land between two convergent streams.* The 'Small Camp' on Hambledon Hill has its outlying spurs protected by double scarp-to-scarp ramparts which are, it is true, broken at frequent intervals, but Dr Gardner² is inclined to think that this discontinuity is caused by flint digging and carting. Whatever the date of the small camp may be, it is, as he has demonstrated, clearly earlier than the Great Camp (i.e. before the end of the first century B.C.); the later camp incorporating one of the outlying ramparts of the earlier in its fortifications. This adaptation of an earlier earthwork may perhaps be paralleled at Butser.

It should be borne in mind, that while we know 'causewayed' earthworks to be Neolithic, it does not necessarily follow that *all* Neolithic earthworks were of this peculiar type; and of Bronze Age earthworks we are as ignorant as we were of Neolithic earthworks twenty years ago. In this absence at present of any evidence for Bronze Age earthworks (other than barrows) there remain only the Early Iron Age and the Roman occupation, to one or other of which we may assign the refortification of the Butser entrenchment. The work has none of the precision and care characteristic of Roman earthwork construction, and if, as may be possible, it was altered in Roman times, it would have been late in that period. We are left then to consider the possibilities of an earlier earthwork being reconstructed in what might be called 'the hill-fort period'.

In the north of Hampshire there is an earthwork which admits of no other explanation of its construction, and which in many respects resembles the Butser earthwork. This is Ladle Hill camp, on a hill south of Sidmonton. The ditch is deep, interrupted by twelve causeways, and encloses an oval area of about seven acres. The rampart is irregular, dipping opposite the causeways, and in places there is a berm between it and the inner edge of the ditch.

There are other corroborative details which need not occupy us here, but it is almost certain that in Ladle Hill we have a Neolithic 'causewayed' entrenchment partially refortified in Early Iron Age times, but never finished.³ It seems probable that the attempt was

* *Antiq. Journ.*, vii, 438-464; viii, 466-77.

² Dr Eric Gardner, 'Hambledon Hill' in *Wessex from the Air*, pp. 44-7.

³ This suggestion, first put forward at a meeting there of the Hampshire Field Club (August 1929), is strikingly confirmed by a fine series of air-photos taken last winter. We hope to publish a detailed description of Ladle Hill in a forthcoming number.—ED.

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given up and a fresh start made on the opposite hill, Beacon Hill (Burghclere), which is crowned by a fine and typical Iron Age hill-fort.

This reconstruction of a Neolithic entrenchment in Early Iron Age times is not unique: the conspicuous hill-fort on the Trundle, Sussex, appears to have been constructed on the outer ditch of a Neolithic camp¹¹—in this case the work was completed and the causeways cut away—and probably the same thing has happened at Scratchbury and at Yarnbury Castle, Wilts.

Has the main entrenchment on Butser Hill a similar history? At Butser we have three distinct causeways between the lengths of ditch: the possibility of others having been cut away at the reconstruction must be considered. Each section of ditch is more or less straight, and when a change in direction is required the ditch stops, a causeway is left and another ditch started at a different angle. This 'inability to turn a corner' is a noticeable feature of Neolithic camps: when seen on an excavated site (as at Windmill Hill) it is very striking. So far as can be seen, the Butser ditch appears originally to have been wide in proportion to its depth and it may have been flat-bottomed. This latter feature is characteristic of Neolithic ditches, which contrast in this respect with v-shaped ditches of Early Iron Age earthworks.

Summing up the evidence, such as it is, the provisional theory is advanced that the main entrenchment of Butser Hill was originally constructed as a 'causewayed' earthwork in the latter part of the New Stone Age and hurriedly reconstructed in Early Iron Age times. Of its intervening history we know nothing; the Bronze Age barrows on the hill to the north are silent witnesses pointing to the occupation of Butser in that period. They are all that remains to record an interval of time nearly as great as that which separates the reconstructed earthwork, (now grass-grown and deserted by all save the rabbits and archaeologists), from the motors humming on the main road in the valley far below.¹²

On the south side of the earthwork are traces of depressions dotted over the ground. These may be remains of hut-sites, but the whole hill is pitted with modern flint digging.

¹¹ *Sussex Arch. Coll.* LXX, 36, and *ANTIQUITY*, IV, 32.

¹² It may be worth while noting that there is a fine disc barrow immediately outside Ladie Hill camp, and another near Coombe Hill (neolithic) camp, Eastbourne; and there are groups of round barrows within the earthworks at Windmill Hill and Scratchbury, Wilts.

BUTSER HILL

THE LYNCHETS

On the southeast slopes of Butser is an extensive group of lynchets (fig. 1 and pl. 1) of the 'chess-board' type, consisting of those approximately rectangular terraces which result from ploughing small fields on sloping ground. Similar lynchets occur over the greater part of the untouched downland to the east, south and west of Butser, and they call for no special comment. The researches of Mr O. G. S. Crawford and of Doctors Eliot and Cecil Curwen have established the main facts about these ancient field-systems, which they have shown to date at least from the Late Bronze Age or earliest phase of the Iron Age up to the end of the Roman Occupation.

It is difficult at present to form an opinion on the age of such a field-system from its general plan. Dr Cecil Curwen however, has suggested that Romano-British lynchets are characterized by a tendency for the individual fields to be square and not arranged in definite lines or strips, and he cites the group on Kithurst Hill, Sussex. By this criterion the Butser group would appear to be of pre-Roman origin. From the rabbit-scrapes and mole-hills over the area of the lynchets numerous fragments of coarse Romano-British wares have been picked up, with few shards that can be definitely called earlier. These Romano-British shards are especially abundant over an area near the main road, with numerous pot-boilers, fragments of gritstone querns and shells of *Helix aspersa* (which, as Dr Clay has suggested,¹¹ appears to have been eaten by the Romanized Britons). This concentration of pottery and cooking debris indicates a habitation site of some sort, possibly a small village or group of huts.

It seems therefore that this group of lynchets was extensively cultivated, though probably not actually laid out in Roman times; possibly it formed part of the cultivated land farmed by the 'villa' on Holt Down to the southeast. Similar Romano-British pottery has been found in rabbit-scrapes in lynchets on Wardown and on the slopes of Gravel Hill Bottom, near this 'villa'.

Connected with the lynchets, and indeed formed by them, is a fine example of an 'interlynchet way', running up the coombe called Hillhampton Bottom. The situation is unusual, for roadways of the Early Iron Age almost always run up spurs rather than 'bottoms'. The sides of this road are formed by the lowest lynchets on each side of the valley, the way itself being sunk between their two banks. It

¹¹ In his article on 'Wudu-burh', in *Wessex from the Air*, p. 137.

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is ten feet wide and the side banks some three feet high. This road runs for about 500 yards northwest up the coombe, but superficial traces of it are lost before it reaches the head of the valley. The rifle range made here (now disused) no doubt helped to obliterate any traces of it.

THE BIVALLATE DITCHES

Across the narrow ridge which separates Hillhampton Bottom from the unnamed coombe south of Rake Bottom is a straight ditch between two banks (ditch II on plan), which continues the line of the interlynchet way. It is some 270 yards long and runs between the two 700-foot contours. This 'bivallate ditch'¹⁴ is a good example of a type of earthwork found commonly in Wessex and to a less extent in Sussex. Dr Clay's researches in Wiltshire and the Curwens in Sussex have established the fact that they are commonly associated with tracks or terraceways leading to and through them, and in several cases these tracks are contemporary with lynchets. These investigators have put forward a theory of their use; namely that they were in no sense defensive, but primarily roads: 'that they were cattle-ways along which Celtic men drove their herds in single file from grazing ground to grazing ground, without the danger of the animals running over and damaging the crops that grew in the fields covering the high land'.

There is a second ditch with two banks (ditch I on plan) 500 yards south-southwest of the first, on Hillhampton Down. In its present state it is 350 yards long and cut into at one point by a modern rectangular pond, now dry. Its southeast end is destroyed by modern ploughing, but its course can be traced as a stony band across the field.

The date of these ditches is presumably that of the associated lynchets. In a section cut on Glatting Down, near Bignor, Sussex, Dr Curwen found late Bronze Age pottery in the silting of such a ditch, and in a Wiltshire example (200 yards southwest of the Swallowcliffe Down Early Iron Age village) Dr Clay found a fragment of pottery 'undoubtedly Early Iron Age in date'; it may be presumed that, so long as the downs were cultivated and there was consequently a need for keeping cattle from straying into the fields, ditches of this double-banked type would continue to be made. We have evidence of agriculture in Neolithic times and of lynchets earlier than the first phase of the Early Iron Age, and there is no reason to suppose bivallate ways to belong exclusively to any one period.

¹⁴ This name, though clumsy, has been adopted because it assumes no purpose for the type, which the alternatives, 'covered way' or 'cattle way', do.

PLATE II



SUNKEN TRACKS ON SOUTHEASTERN SLOPES OF BUTSER HILL.
By permission of the Air Council, Crown copyright reserved

PLATE III



BUTSER HILL: MAIN ENTRENCHMENT AND DITCH II; TAKEN IN SNOW
By permission of the Air Council, Crown copyright reserved

BUTSER HILL

THE BARROWS

On the spur called Ramsdean Down are three round barrows placed in a row running roughly east-west. They all have slight ditches, have an average diameter of 60 feet and are some four feet high. All have been dug into from the top.

On the flat hill-top are two large barrows close together; one, the more southerly, is a simple bowl barrow about three or four feet high with the ditch obscured; it is much mutilated by rabbits, and on their scrapes flint flakes can be picked up. The material of the barrow is the yellow clay-with-flints which caps the chalk at this point. The other barrow was originally a fine bell-barrow, about eight feet high and 135 feet in diameter, but it has been ruthlessly dug into from the top and one side, leaving a gaping crater which disfigures the once symmetrical mound. On the south side the rabbits throw out small fragments of unburnt human bones, presumably of secondary interments.

Near these two barrows is a roughly circular water-hole, which even during the drought in the summer of 1929 was damp at the bottom and had rushes growing in it.

On Little Butser, southwest of Round Copse, is a low mound some 30 feet in diameter and about one foot high. It is probably a denuded barrow. Other similar mounds are to be found among the dense undergrowth on the flat hill-top.

Not far from this barrow is one of those peculiar mounds known as 'pillow-mounds', which have been described at length in *Wessex from the Air*, pp. 18-24. (A reference to this one will be found on p. 19). It is a low rectangular mound, about nine inches high, surrounded on three sides by a ditch six feet across, measuring on the outside of this ditch 35 feet by 20 feet. The purpose and age of these mounds is still debatable: some seem to have been artificial rabbit-warrens, but this seems hardly likely on Butser, for although the hill swarms with rabbits, which find ample accommodation in the loose clay soil, not one of them has selected this mound for its home.*

About 100 yards north of the barrow and pillow-mound is a circular platform, 30 feet across, levelled on the slope. Around this the

* I am now convinced that some pillow-mounds at any rate were certainly built to provide accommodation for rabbits. There is a large group of them at Ditsworthy Warren on Dartmoor, and most of them are today full of rabbits. They are made of earth and stone, and are particularly numerous in the immediate vicinity of the Warren House itself.—O.G.S.C.

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mole-heaps contain coarse sherds, quern fragments and pot-boilers, pointing to a settlement.

SUMMARY

In our examination of its earthworks we have caught intermittent glimpses of the long history of Butser Hill. We have seen it first as an important meeting place of ancient trackways; associated with them was perhaps the settlement which grew up near the south spur somewhere about the end of the New Stone Age—say about 2000 B.C. Our next glimpse reveals a new people, knowing metals, who thought the hill worthy to be the burial place of their great ones for whom they made the barrows. Possibly now the increasing traffic cut the track hollow from the valley on the northeast spur. But, for a long interval, until about 200 B.C., we know nothing of its inhabitants; then, in the Early Iron Age, we see its sunny southern slopes chequered with cornfields, and cattle grazing in the coombes. Perhaps a sudden danger suggested the refortification of the entrenchment on the south spur; or possibly the work was carried out by some lawless tribe in order to gain control over the increasing traffic along the converging ridgeways. Then the Romans came, and the fields were peacefully cultivated as before: at the foot of the hill on the south was perhaps a little hamlet of thatched and wattled huts where the herdsmen and farm labourers lived. Life went on uneventfully until the Saxons came, and Arthur and his army may have tramped along the ridgeway on their way to victory at the Castle of Guinnion.

The hills were then abandoned, and new villages grew up by the springs at the foot of the Downs. Butser was a hill no longer occupied by men, but only by rabbits and hares. Through the Middle Ages the ridgeway was still a main road with strings of pack-horses plodding slowly along. Meanwhile the Portsmouth to London road became more and more frequented. Samuel Pepys rode past Butser in his coach on his way to Portsmouth on a fine April morning in 1662, and early one day in October 1805, a coach came racing by from Portsmouth, carrying to London the news of Trafalgar. Butser has watched human endeavour for 4000 years: it may watch them for as long again and outlive them all.

My thanks are due to Dr Williams-Freeman for his valuable help in discussing some of the problems on the spot, and to Messrs D. T. Bertram and R. Carter, whose help in the field alone made possible the plans and sections of the earthworks here illustrated.

The Glozel Forgeries*

by A. VAYSON DE PRADENNE

President of the Prehistoric Society of France

THE readers of ANTIQUITY were, from the first, correctly informed about Glozel. But, having exposed the fraud, the Editor decided to ignore the torrent of polemics which ensued. His attitude was a wise one, for a forgery can only be scotched in its own country.

Why then revert now to the subject? Are there not good reasons for saying no more about it? One might urge, for instance, that the affair was now at an end: that it was an absurd hoax which now has been recognized as such by practically all prehistorians; that there remain only a few obstinate dupes who refuse to admit their original mistake; and that in the heat of controversy, inexperienced people have become involved and have taken the affair out of the domain of science: so that it has now ceased to be of interest to serious students—it is no longer Science.

To such arguments we reply:—‘Pure science’ is an abstraction. In reality Science consists, at any given moment, of the sum total of the actions and opinions of the men who study it. It is these people who create what is called Science, and its value is exactly proportionate to theirs. Their behaviour, therefore, is by no means a matter of indifference to us, and it needs careful scrutiny. Thus, to use a simile, the idea of *weight* can be conceived quite apart from *scales*. But since in practice it is by means of scales that weights are determined, the physicist must see that his scales are true before discussing the results obtained by their means. He must know what order of accuracy to expect and, if the scales are out of order, he must discover the cause.

To withdraw from a controversy may be expedient as a means of evading attack, but there is absolutely no scientific merit in such

* Translated by the Editor. It will of course be realized that detailed exposures of the hoax have been published in numerous journals and do not therefore require reiteration in an article of a general character like this. Apart from the original exposure by MM. Vayson and Dussaud, the official reports referred to below give detailed categorical proofs of forgery.—Ed.

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weak behaviour. It is merely playing the game of the forgers who attempt to profit by the withdrawal. The history of previous hoaxes shows that an affair of this kind is never completely finished until all the dupes, their disciples and friends are dead. The forger himself rarely confesses, but even when he does one never gets a complete admission of deception from all the dupes. A hoax which has been unmasked and recognized as such in contemporary scientific circles may then be simply put on one side with contempt, but yet if the evidence has not been completely exposed it will reappear at some later date. It comes to life at the first favourable opportunity, which is generally that of the emergence of a fresh hoax.

There are curious resemblances to be noted between forgeries of quite independent ancestry. Should a new hoax spring up, its dupes and advocates will not fail to invoke the aid of analogy. Their arguments are always the same: 'Analogous discoveries have already been made', they say, 'but they were declared to be false because they constituted a new discovery, because they ran counter to orthodox views. The similarity of the present discovery leaves no room for any further doubt; the authenticity of both finds is proved'. Thus does one hoax subsidize another.

That is why a hoax has to be as thoroughly extirpated as a crop of weeds; it is essential to pull it up, roots and all, if one does not want to find it sprouting again some fine day. That is why the Société préhistorique française thought it necessary to take legal action; so that the hoax might be shown up in all its details before the general public, misled as it was by press stunts, and before those timid prehistorians for whom scientific proof was insufficient and who had not the courage to hold an opinion contrary to that of certain eminent officials.

The history of Glozel is useful as well as diverting, because it lays bare so cleverly the workings of imposture and the development of a controversy. It is a strange human comedy, presenting a group of men of the scientific world and revealing both the positive and negative aspects of their knowledge, their method and their temperament. We have been allowed to see the scales of human judgment and how they behave in action. Each side rallied to its support everything that could possibly help to decide the issue. Thus we can assess the exact intellectual value of those combatants who retired hurt—and this is quite a useful acquisition for future use; in addition we have seen how an imposture is born, and how it grows and struggles against the truth.

THE GLOZEL FORGERIES

How and why did the impostor come to start operations? How and why did the dupes fall into the trap? By what arguments did they then try to bolster up their mistake? That is the aspect of the case which really deserves to be studied, because it leads to results of general utility in the realm of knowledge.

It must be observed that this concentration of interest on personalities does not imply a loss of objectivity in our treatment. It is as men of science that the individuals concerned are to be judged; it is from this point of view that they are so diverting. Reduced to the lowest terms of its wretched material content, Glozel would have no interest and the whole affair would be incredible. It is the living subject and its behaviour that is all-important.

A complete history would exceed the compass of this essay. We shall therefore attempt only to sketch the principal events in outline.

On 1 March 1921, a peasant proprietor named Fradin, living at Le Glozet, a hamlet of the commune of Ferrières-sur-Sichon (Allier), when working in a field brought to light some rather peculiar broken bricks. They attracted his attention; he dug on the spot and laid bare, at a depth of about 3 feet (1 metre) a pavement of oval form consisting of about fifteen large flat bricks. This paved area measured about 7 feet (2 metres 50) long and was enclosed within a little wall of unworked stones and small bricks cemented with mortar. All the interior surfaces had been subjected to an intense heat which had vitrified them. It was an old glass-kiln exactly resembling others which had been discovered in the neighbourhood. Moreover, amongst the débris were found fragments of glass, broken crucibles and a piece of iron which has since been identified as a glass-blower's rod.

Naturally the Fradins—a young man, his father and grandfather—could not explain their discovery. They thought it interesting because of the pretty appearance of the sparkling bits of glass and vitrified objects. Like every peasant on such occasions, they proceeded to hunt for 'the treasure'. Failing to find it, they informed the village schoolmistress, who, in accordance with the instructions issued to all such, made a report to the Educational Inspector of the department. She thought it consisted of a cremated urn-burial. The Société d'Emulation du Bourbonnais obtained information of the report, and delegated its nearest member, M. Clément, schoolmaster of La Guilleymie, to undertake a preliminary examination. M. Clément was young and had only very rudimentary ideas about archaeology.

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After his first visit on 9 July 1924, he accepted the burial hypothesis, and those members of the Société d'Emulation who visited the site a few days later equally failed to recognize the true character of the discovery.

If they could have said to the owners: 'This is merely an old glass-kiln of no interest', no doubt the matter would have rested there. But their uncertainty suggested that the find was something new, unknown, mysterious. It might be hoped then that from it would emerge objects of a remarkable character, of great *value* . . . Imagination had free rein and the field was clear for imposture.

THE BIRTH OF THE HOAX AND THE WAY IT DEVELOPED

Young Fradin's curiosity was aroused and he continued to dig. He was a humble peasant about 18 years old, somewhat work-shy and with a rather morose expression of countenance, anxious to escape from the hard labour of the farm work which was rather beyond his physical powers. He had done well at the primary school and remained there longer than usual, and he had developed artistic tendencies; his bedroom was ornamented by little watercolour paintings done by himself.

Schoolmaster Clément paid regular visits to Le Glozet. Attracted by prehistory, he was glad to find in young Fradin an attentive and keen pupil. He showed him his small collection and the few books and pamphlets he possessed. In the collection was one of those lumps of schist, quite common in the district, which are by-products of the manufacture of bracelets of the Bronze or Early Iron Age. This lump had the peculiarity of being engraved, at some period unknown, with four signs, and was doubtless carried as an amulet. The first sign was like an arrow, the three others like the letters s t x. F. Pérot, an old collector of Moulins, had published a note about it, in which he described also a diorite axe with what he believed to be a cross and a kind of Greek *lambda*. Apropos of this, Pérot referred to the existence in ancient times of markings in the form of a cross, a *tau*, a swastika, etc. Clément accordingly regarded these objects as possessing quite a peculiar interest. A layman who saw them might well think that such interesting objects would be very easy to reproduce. This time the temptation was direct.

In a letter of 13 October 1924, addressed to the President of the Société d'Emulation, Clément narrated that young Fradin had just forwarded to him as having been found near the 'grave', the end of a

PLATE I



INSCRIBED TABLET FROM GÉOZEL.
(After Dr. A. Morlet)

PLATE II



INSCRIBED SCHIST RING
(After Dr. A. Molet)



DAGGER: "LA PIÈCE LA PLUS DÉCORÉE DE GLOZEL"
(After Dr. A. Molet)

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schist pebble with three engraved signs : almost s x r (the lower part of the s was unfinished, the r was placed on its side). This was the first Glozelian object.

No shadow of doubt obtruded itself upon the schoolmaster, who was delighted by this discovery. He has since recalled the extreme hesitation with which it was offered to him.

The timid attempt had succeeded ; it was not repeated, however, until two months later. This time it was the axe which inspired the forger. In a letter of 31 December 1924, Clément informed the Société d'Emulation of young Fradin's discovery of a ' piece of a rough polished axe of black schist '. He asked for a grant of 50 francs to continue the excavations.

The Society refused ; doubtless the interest of the finds appeared inadequate. Immediately there appeared ' further remarkable objects ', announced by Clément in a letter of 30 January 1925. He explained that a ' closer examination ' of one of the original bricks had revealed signs on it, of which he enclosed a copy. It was young Fradin who had drawn attention to this brick, whose surface was covered with mud. Clément, who had already seen all these bricks—about fifteen in number—without noting anything, was surprised now to find one of them covered with signs ; but he was so devoid of all suspicion that the possibility of fraud never occurred to him.

The forger's inspiration for this first inscribed brick appears to have been again derived from Pérot's notes and from a book of Levistre's lent to Fradin by Clément ; in this were figured certain signs which, engraved on megaliths, were more or less fortuitous in character and belonged to an unknown period. Levistre regarded them as a kind of script.

The Société d'Emulation was intrigued and its suspicions were aroused by this inscription. M. Espérandieu was consulted and he pronounced that ' it is Latin . . . or it is a forgery '. Doubtless the forger realized the danger, for he did not publish another of the kind, and confined himself during the months which followed to the manufacture of one or two small schist axes with some engraved signs.

It had taken more than a year to get to this point. Such moderation at the outset was undoubtedly one of the factors which contributed largely to the success of the hoax. The forger was prudently and patiently sharpening his native peasant wit. Thus he made up for his ignorance and lack of technical skill ; he was able to find out gradually how to act and how best to avoid suspicion.

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Apart from these 'merits' on the part of the forger, the hoax was well served by the inexperience of the first dupe. M. Clément could not detect the imposture, gross though it was, from a mere examination of the objects. The suspicion of fraud, which should always be kept in mind, did not occur to him. He acted imprudently, moreover, in lending books which served to guide the forger.

But the great development and success of the hoax is undoubtedly due to Dr Morlet. A doctor with a small country practice who had recently come to live in Vichy, Dr Morlet carried a light cargo of archaeological knowledge. He had done some excavating on a Gallo-Roman site, and had once attended Girod's lectures on prehistory. Aided and abetted to a remarkable extent by his weaknesses, he committed almost all the mistakes that could be committed in such an affair. Accordingly his case is peculiarly instructive.

Dr Morlet had heard of the excavations of Le Glozet and of the refusal of a grant by the Société d'Emulation, and he told M. Clément that he would like to see the finds. M. Clément showed him the objects and introduced young Fradin. Being quite incompetent in these matters, the good doctor did not detect the forgeries; on the contrary, he considered them very interesting. Full of enthusiasm and imprudence, he declared on the spot, so Clément has narrated, that 'here was a discovery which would attract to Le Glozet the savants of the whole world, more compelling than was even the Java skull'. A wirefence should be put round the field and a charge made for admission. Young Fradin listened agape. . . . He must have seen at once that Dr Morlet was his man, and he was not going to let him slip. But he acted with no undue haste.

It was not till a month later that Fradin, so he tells us (*Mercur de France*, 15 August 1926), sought out Dr Morlet at Vichy, to 'tell him his troubles'.

Indignant at the Society's refusal of a grant, Dr Morlet promised the Fradins, so he told me, that he would give 200 francs instead of the 50 francs asked for, and that 'if more was found he would give more'. There he committed the classic error which cost Boucher de Perthes the forgery of Moulin-Quignon. Two days later there was brought to him a sort of pot-base, made of badly puddled clay, inadequately fired. It was the birth of Glozelian pottery.

His behaviour to M. Clément, who, after all, had been concerned from the outset with the pseudo-site, was somewhat brusque, to say no more. He arranged to cut him out, and to take over from him the

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original discoveries. He signed an agreement with the Fradins, purchasing the right of excavation, and the scientific control of the discoveries. The Fradins were to retain actual control over the objects themselves, thus obtaining the right of being constantly present at the scene of action to supervise all the finds.

From this time onwards it was Dr Morlet who excavated at Glozel, always in the company of young Fradin. Being, however, often absent himself, he allowed his 'colleague' to excavate alone. Furthermore, he began to increase his own knowledge by reading archaeological books which he passed on to his associate. 'I have never concealed anything from my colleague', he told me proudly.

This collaboration became increasingly productive, leading up to the great scene of June 1927. But we must not anticipate. What we must bear in mind at this stage is the fact that Dr Morlet, by his incompetence, rashness and lack of judgment, gave the impetus to a hoax that otherwise would have miscarried at the outset.

In my 'Chronology of Glozel' (*Bulletin de la Soc. préh. franç.* 1927, XXIV, 293-319) I have given the later history of the forgeries. This was made possible by M. Clément's letters, kept by the Société d'Emulation. Dr Morlet's first publications inform us of the course of events immediately after his arrival on the scene. From these unassailable documents we learn:—

1. That the different classes of objects appeared in succession;
2. That the technique of manufacture gradually improved (this is particularly noticeable of the pottery);
3. That the forger's output corresponded closely with the documents provided by his dupes with the wishes they expressed with the objections and criticisms of opponents.

This development is true to type; it is a characteristic of all great impostures. The forger is guided step by step by his dupes, thanks to their confidence and to the discussions which they initiate.

THE TRIUMPH OF THE HOAX AND ITS CAUSES

To have thus succeeded in deceiving a young schoolmaster and a country practitioner of no special attainments was but a moderate achievement. The forger was to have a real triumph, thanks to a series of events which we shall briefly narrate.

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The jealous nature and vanity of Dr Morlet prevented the so-called site from being properly tested and examined by prehistorians. At the outset Dr Capitan had visited the newly discovered site, and it must be admitted that he did not assess it at its true valuation. However, his intervention would have brought the site to the notice of prehistorians, and it would not have been long before it was shown up. But Morlet feared that Dr Capitan would 'steal his thunder', so he showed him the door. He would share his good fortune with no one, and incompetent though he was, he rushed into print with his 'Nouvelle station néolithique' (September 1925), without consulting any specialist, without making any attempt at serious study. So far from approaching people who might have enlightened him, Dr Morlet passed over the Société d'Emulation, of which he was a member, and paid his court to local journalists, in order to advertise himself.

But pamphlets and newspaper articles have no echo. So Morlet went to Paris, and knocked at the doors of a number of savants: M. Boule, Professor of Palaeontology at the Museum; M. Dussaud, one of the conservators of the Louvre; M. de Mortillet and the Abbé Breuil; M. Camille Jullian, the historian of Gaul; and M. Salomon Reinach, Conservator of the Museum of National Antiquities and a prolific writer. Everywhere he himself was received with cordiality, but his finds with reserve.

Confronted with this reserve, these warnings of the scientific world, anyone else but Dr Morlet would have paused to reflect, would have verified his facts, called in assistance and eventually discovered the truth. But not he! Oblivious to all else in his pursuit of fame, he could see only a hostility over which he must triumph at all costs. He managed to persuade—and there are many forms of persuasion—a publicist of no great repute, M. van Gennep, who supplied the *Mercure de France* with a running commentary on ethnography, folklore, etc. Van Gennep opened the *Mercure de France* to Dr Morlet, and from then onwards this remarkably omnivorous literary review became the official organ of Glozel. I have described in detail elsewhere the superficiality, the astounding one-sidedness of van Gennep's first Glozelian articles, reporting without any attempt at verification the sayings of the Fradin family. Since these included a certain number of stories harmful to members of the Société d'Emulation, contradictions and corrections were not long in appearing. This was the beginning of a controversy of a personal kind.

In his infectious enthusiasm, backed by an obvious sincerity,

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in the money that he never stinted for the cause, by his personal friends, and in the lure of mystery and novelty so dear to the laymen, Dr Morlet possessed an armoury of weapons with which to capture the journalists. So he had widespread support in the press.

Thus the protagonist of Glozel prevented that atmosphere of mistrust, present from the outset in scientific circles, from spreading to the general public. A fortunate accident obtained him converts amongst persons who opened the doors of the Institute to the Glozel hoax.

The forger had been lent textbooks of prehistory, and he had copied, more or less fancifully, and without discrimination, objects belonging to all ages between the palaeolithic and the historic periods. The result, a regular hotch-potch, included reindeer engraved on pebbles, polished axes, pottery reminiscent of Hissarlik and inscriptions. Amongst the last were some actual Phoenician signs—included to please Dr Morlet, who, from the start, had tried to discover traces of Phoenician amongst the scrawls in which he wished to find the beginnings of the alphabet. Since not only were the objects strictly associated, but the same inscriptions figured alongside of engravings of reindeer and on vessels of the Hissarlik type, a mingling of different periods was inadmissible. Dr Morlet, refusing to admit fraud, placed the whole group in the famous *hiatus*, whose transitional character and mystery have always conspired to make it the natural dumping-ground of forgeries. But in the present case this involved two conclusions as important as they were bizarre:—both the survival of the reindeer and the appearance of the alphabet in France at the beginning of the neolithic period.

By a stroke of good luck for the forger these results, contradicting the strongest and most abundant scientific evidence, coincided remarkably well with the opinions of M. Salomon Reinach on the *Mirage Oriental*. Dr Morlet perceived this, developed the idea and sent to M. Reinach (who, well advised at the outset, had not yet allowed himself to be caught) his third pamphlet, inscribed: 'To the father of the *Mirage Oriental*, an unrecognized child'. An overwhelming temptation this for a naturally obstinate man, obsessed for forty years by a theory constantly in conflict with the facts! Salomon Reinach set out for Glozel. He was lost before he started, for to counterbalance so great a temptation he would have required a highly disciplined critical faculty. Now this great man of learning, whose brain is essentially receptive, has always conspicuously lacked this faculty. He has,

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moreover, always looked at archaeological facts only through a veil of literary form, and he has always neglected the study of *things* and of technical matters ; so that it is not hard to perceive why he has so often been the victim of forgers. (For his mistake over the tiara of Saitaphernes, though the most famous, is but one of a long series).

Reaching Glozel 24 August 1926, M. Reinach saw unearthed in front of his eyes, by the expert hands of young Fradin, a complete series of the best products of the locality. M. Seymour de Ricci, who accompanied him, in vain tried to put him on his guard ; the innocent air of the excavator, the ardent faith of Dr Morlet and the yielding nature of the soil definitely overcame him. One must read in the *Mercure de France*, 1 November 1926, Dr Morlet's naive and delicious account of this excavation from which the old Conservator of Saint Germain, happy as a child, found, one might almost say to order, what he had announced that he wished to find. Two days later M. Reinach ascended the tribune of the Académie des Inscriptions and said that he could 'state without hesitation that all these objects are authentic, have not been tampered with and are from the same site', and that the theory of a mystification 'is for the future untenable'.

From this moment it was like a game of ninepins. The fall of Reinach brought with it automatically that of Espérandieu, his creature at the Académie des Inscriptions.

Depéret next hastened to the spot. Dean of the Faculty of Science at Lyon, his life had been dedicated to the study of palaeontology and geology ; but a few years ago he tried to found and direct a school of prehistoric and anthropological research that should be worthy of the former capital of Gaul. Hearing of the success of a discovery made within his own region, he came post haste with a colleague (14 September 1926) and allowed himself to be convinced. His researches in palaeontology and geology gave him no qualifications in prehistoric archaeology, least of all with regard to forgeries. On 11 October he announced before the Academy the authenticity of the discoveries. His influence was considerable for two reasons. He had quite a following of colleagues, pupils and friends, so that numerically he counted for a good deal. Then again, being well known as a geologist and as an excellent palaeontologist, he was nothing if not a man of science. Many people who attached no importance to the opinions of MM. Salomon Reinach or Espérandieu, were influenced by a statement from Depéret. It was in this way that the Abbé Breuil himself, whose visit to Glozel was made under unfavourable circumstances,

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allowed himself for the moment to be drawn into a qualified admission of authenticity. About the same time (19 to 23 October 1926) the old Celtic scholar, J. Loth, of the Académie des Inscriptions, having attended the excavations, declared himself convinced.

At the end of 1926 the situation was definitely in favour of Glozel. A constellation of members of the Institute had stated from the tribunes of both Academies that it was one of the greatest archaeological discoveries of the century.

By the side of orthodox Glozelians, who recognized the neolithic authenticity of the finds, a small schismatic group formed itself round M. Camille Jullian, the learned historian of Gaul, regarding them as Gallo-Roman. M. Jullian described to the Académie des Inscriptions how he had succeeded in deciphering the Glozel bricks, which were inscribed, according to him, in Latin. He saw in them the magical formulae of a 3rd century sorcerer's workshop. It should be remarked that he created a feeling of amazement and that no epigraphist followed him. However, his solution recruited a few supporters from amongst the moderates, because superficially it seemed to harmonize everything: the pottery, the crucibles, the glass, etc., were not at all inexplicable in the Gallo-Roman period; the miscellaneous assortment of polished axes, of uncouth inscriptions, of animal drawings were to be accounted for by magic. And Count Bégouen, Professor of Prehistory at Toulouse, who some months before had called for the appointment of a committee to test and investigate the site, had reached the point of stating in his lectures, at the beginning of 1927, that he was beginning to decipher some Glozelian inscriptions himself. (*Le Télégramme*, 12 and 21 Feb. 1927).

However, M. Jullian could not reconcile himself to the progress of the Glozelian script when it veered steadily round towards Phoenician. Being no longer able to read them as Latin (as he had succeeded in doing with the first formless scrawls) he declared that the first productions of 1926 were forgeries. This had two results: it aroused the fierce opposition of Dr Morlet and of M. Salomon Reinach; and it subsequently induced the forger, who respected the criticism of so eminent a man, to correct his later products.

DISCOVERY OF THE HOAX

In spite of the apparent triumph of the Glozelian theory, in spite of widespread reticence due to the lack of arguments strong and precise enough to be set against the vehement statements of highly-placed people, a latent scepticism continued to smoulder amongst those most

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closely in touch with prehistory and epigraphy. Thus M. Dussaud, speaking at the Académie des Inscriptions in 1926 about the oldest alphabets, made no reference whatever to Glozel. But in the history of an affair like this, one must not reckon only with official public pronouncements. The earliest statement of scepticism published is, so far as I am aware, that of M. A. de Mortillet, who, at a meeting of the Société préhistorique française of 23 November 1926, stated that there were forgeries at Glozel, and that the letters of the inscriptions appeared to him to be 'suggested by various ancient alphabets, of different dates and origins, with the addition of imaginary signs'.

Mr Crawford was the first to write a note on 'l'affaire Glozel', which appeared in the first number of *ANTIQUITY* (March 1927). This note was reinforced and expanded in an article which appeared in the June number, where it was concluded that 'the majority of the objects of Glozel were quite certainly forgeries'.†

The same month (June 1927) without knowing about Mr Crawford's articles, I went to Glozel at the suggestion of MM. Boule and S. Reinach. Since for the previous two years or more I had neglected my prehistoric work, I was out of touch with the affair. The first rapid examination revealed to me the obvious and typical spuriousness of certain objects. Thinking that there might be, as so often, a mixture of spurious and authentic, I attempted to discriminate; I observed with surprise, however, that everything was spurious and obviously the work of one individual, with the exception of the bricks and crucibles. On the bones and polished stones could be seen traces of metal tools, and on some were clear marks of a file. The pottery, which was hardly baked at all, displayed an utter ignorance of all technique; it was the work, not of primitive man, but of a child; the incised designs, in spite of a clumsy and obvious faking of the surface, showed on certain specimens the traces of metal implements. It was, moreover, quite impossible, in view of their lack of firing and fresh condition, that they could have lain for centuries at a shallow depth in the damp soil of the locality.

A single rapid technical examination sufficed therefore to form a conclusion. I said nothing to the Fradins, but without further delay

† In using the expression 'majority' I wished to be strictly accurate. The only 'genuine' objects in my opinion, were, as I said, the bricks, crucibles and glass fragments and other débris from the glass kiln, together with a few minute flint chips. All except the last were plainly of quite a late date, and irrelevant to the main issue. I never had the least doubt that the rest of the stuff was all of it forged.—TRANSLATOR.

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I wrote a preliminary note recording these observations. (*Bulletin de la Soc. préh.*, July 1927).

Shortly afterwards I called upon Dr Morlet, satisfied myself that the objects in his collection were by the same hand as those in the 'Musée Fradin', and with his permission made two excavations at Glozel—the first time in his absence, the second time with him. It was a case of scratching at the sides of shallow trenches already dug (about 70 centimetres deep). Some small objects were met with in clay mixed with granitic grit, with no clearly visible traces of their method of insertion there. Towards the bottom of the trench, where the clay was more compact and harder, I found a sort of horizontal tunnel by means of which an engraved pebble had been intruded. The clay which had been used to stop up the hole again was of a consistency quite different from that of the rest.

A trench quickly driven out at right angles showed that a block of between 20 and 30 centimetres only (8 to 12 inches) in width had been thus 'salted': beyond this one ceased finding anything. This proved that the 'salting' of the site had been carried out *pari passu* with the progress of the previous excavations. The loneliness and isolation of the spot made this easy. The prying eyes of neighbours could achieve nothing, for they would not be able to tell from a distance whether any one was digging to extract objects or to insert them.

I was also able to satisfy myself that two recently opened pseudo-tombs were a kind of dug-outs set with dry stone walling. The roof was made of two inclined slabs. The forger had not even taken the precaution of ramming soil into his erection, and there were empty spaces left between the lateral stone walls and the earth which they were supposed to be supporting! The purpose of these constructions was to make possible the discovery on a single occasion of a large collection of vases and bulky objects which it would have taken too long and been too risky to insert one by one in the ground. I explained his mistake to Dr Morlet; but he refused to be persuaded, and launched out at once into that course of violent language and writings which he has pursued ever since. I set forth all these facts in detail in my second note which appeared at the same time as the first one (*Bull. de la Soc. préh.*, July 1927).

My statements and my offer to re-enact all these proceedings upon the spot were met by M. S. Reinach, verbally, with absolute confidence and unshakable faith. His tactics in front of me were not to engage in a public discussion.

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To complete my investigations I then took up the history of the affair. Everything then became clear, and I published a long note entitled 'La Chronologie de Glozel' (*Bull. Soc. préh. franç.*, September 1927). There I set out in detail the origin of the hoax and the stages of its evolution—the perfecting of technique, the emergence of discoveries in successive groups, and the influences affecting the forger, as I have just shown above.

Whilst this note was in the press, M. Dussaud undertook the task of demonstrating to the Academy the spurious character of the inscriptions and of the whole site of Glozel. He began at a secret sitting held on 16 September 1927. But the secret soon leaked out, and two days later the *Journal* published a long article on the subject. The character of the arguments used by M. Dussaud are essentially of an epigraphic kind; they can be read in his brochure: 'Autour des inscriptions de Glozel'. The most piquant portion is that which deals with the evolution of the inscriptions. To the composite, shapeless scrawls of the early days there had succeeded an incoherent mixture, consisting of true Phoenician letters but belonging, curiously enough, to the latest phase of that language. As soon as this anomaly was pointed out, there immediately appeared a few letters of the oldest phase. Finally, in the last months of 1926, Dr Morlet, and through him, the forger, having heard about the quite recent discovery of the alphabet of Ahiram, four centuries older still, the writings of Glozel began to take on a likeness to that of Ahiram.

THE CONTROVERSY

After such demonstrations one might have thought the matter ended. To do so would be to underestimate the capacity for obstinate resistance displayed in such cases by those who have been humbugged. The Abbé Breuil, however, whom the advocates of Glozel were so proud of including in their ranks, wrote me a letter (2 August 1927) which I published forthwith, in which he explained that it was solely on the authority of his precursors at Glozel that he had provisionally admitted the hypothesis of authenticity, in spite of his private scepticism.

But there remained a small group of irreconcilables, composed of those who had committed themselves over-rashly to the affair, amongst whom, it should be observed, was not a single student of prehistory.

First of all there was Dr Morlet, who in pursuit of fame had, so to speak, staked his whole existence on the wretched card dealt him by

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young Fradin. Glozel, true or false, was for Morlet 'to be or not to be'. Still young and endowed with a wild energy, with an inflexible resolution and a naive and immoderate self-esteem; devoid, on the other hand, of competence and of the critical faculty, he threw himself whole-heartedly into the fray. A strange figure indeed, for whom one cannot help feeling pity, as for a bull thrust into the arena whose courage and vigour one admires in spite of its stupidity.

By his side was Salomon Reinach, the man who of all men of learning shows the greatest pertinacity in adhering to an error; the man who, in the case of the famous tiara of the Louvre, even after the proofs piled up by the enquiry and the confession of the forger himself, still maintained, in a minority of one, that the problem was 'by no means settled' [nullement éclaircie]. (*L'Anthropologie*, 1903, pp. 361-4).

These two tireless henchmen were supported by several others. The most influential, for reasons we have stated, was Depéret, the geologist. To his prestige as a man of science there were added the qualities of urbanity and obvious moderation, so conspicuously lacking in his fellow combatants. Instead of maintaining, like them, an attitude of unshakable faith, he freely stated that he was prepared to admit deception if scientific proof were given. The severe rebuffs successively encountered by Glozel failed to draw from him prompt and heated rejoinders like those supplied by Dr Morlet, Salomon Reinach, and others. He said nothing, and one thought 'this time surely M. Depéret has got the scientific proofs he demands; he must now be convinced and surrender'. But a fortnight or a month later M. Depéret emerged afresh from his silence, and, while not replying directly to the proofs of fraud supplied, expressed yet once more, in describing some new investigation, his scientific adherence to the authenticity of Glozel.

It would take too long to follow in all its windings a controversy which lasted two and a half years. We shall be content to indicate its main psychological features.

The principal feature of the Glozel controversy has been its habit of continually taking up a fresh position. In this it is true to type. The defenders of a false position abandon in turn each of those points whose untenability has been proved, to take up their stand on another. True, in abandoning them they do not admit the truth but cover their retreat with any sort of rejoinder that can be furbished up. Thus there arises a controversy, which is all to the advantage of the protagonists of error. Actually in a scientific discussion arguments are weighed,

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whilst in a controversy they are counted; an objection must not be left unanswered, but the kind of answer given does not matter. Thus the public demand for logic is satisfied. But to achieve this one must go beyond the radius of scientific circles. One has got to appeal to the general public. This is what the backers of a hoax do always; the champions of Glozel followed suit. We saw how, at the start, Dr Morlet launched his discovery in public by writing to a literary review and to the newspapers. The whole controversy has been organized and backed up by the press. In addition to the time-honoured method of obtaining press support, the partisans of Glozel had certain factors on their side. There was, first of all, the lure of curiosity and novelty; they had something sensational to provide and newspapers like that. Then Dr Morlet himself, with his ardent faith, his whole expression radiating the zeal of a missionary, stood, from a psychological point of view, for a great power of persuasion. His sincerity appeared to be above suspicion, and the average journalist and the man in the street concluded that there could be no forgery at Glozel.

Thus with the aid of the press it was easy to bamboozle the public—a manoeuvre that in such cases is made easier by the fact that the public is incapable of reasoning, or does so with its heart and not its head. One has only therefore to play upon its emotions.

After my first notes, Dr Morlet's first move was to publish a long personal diatribe entitled 'Sherlock Holmes à Glozel' (*Mercur de France*, 1 August 1927). He added some remarks in a similar strain addressed to Mr Crawford, and M. de Klercker, whose scepticism he had noted. Conducted thus upon a personal basis, a discussion has several advantages for the protagonists of error. It is a huge field with room for every kind of manoeuvre; if one's opponent does not reply he is assumed to be silenced; if he replies he becomes involved in controversy. The public concludes that one has 'lost one's scientific calmness', and that it is impossible to discern the truth. That is a satisfactory result for those who are in the wrong.

But the champions of Glozel were able sometimes to obtain even better results by appealing tactfully to public feeling. They appealed to notions of fair play and democratic sentiment by urging that a cabal had been formed against a poor peasant and a country doctor by rich and powerful people, jealous of the good fortune and fame acquired by these humble folk. They truckled to popular snobbery and respect for established positions by declaring that the great authority of MM. Salomon Reinach, Loth, Espérandieu was a sure safeguard against so gross an error.

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Then they fed the public appetite for learning 'secret history' by launching explanations that would 'explain all'. I had attacked Glozel, they said, because someone had refused to sell me the finds; M. Dussaud denied the authenticity of the neolithic alphabet, because if admitted his career as an orientalist would be finished. The opposition to the great discovery could be explained in a general way by its novelty, which upset old-established ideas, and by its importance, which aroused jealousy.

To this row of sentimental arguments the Glozelians added others of what is called a 'commonsense character', such as are always trotted out on these occasions—always the same and always false. 'The forger must surely be a great savant, a regular genius, to have organized such a fraud. A poor peasant could never have done all that'. But such an argument passes over the essential fact:—the hoax evolved itself gradually; it was unconsciously directed by the dupes themselves, and its course was guided by the criticisms of its opponents. It was the offspring of collaboration. Then, in the second place, it was maintained that 'there are thousands of specimens; surely a forger could never have achieved such mass production'! Actually, the mass of the specimens did not demand a great deal of work to produce, and in a few months a forger could well turn out a large quantity. Lucas alone in six years forged more than 27,000 autograph manuscripts. Moreover at Glozel, amongst the 1500 or 2500 objects the greater number were fragments of crucibles, bricks and such like from the glass kiln.

THE CHIEF INVESTIGATIONS

(1) *The provisional scheduling.* Directly after the epigraphic proofs provided by M. Dussaud, in consideration of the feeling aroused by the first discussions, the Minister of Education issued a preservation order, dated 5 October 1927. The immediate effect of this was to protect the site as a 'scheduled historical monument' for a period of six months, after which and upon the recommendation of the Fine Arts Commission, the scheduling is, or is not, confirmed. M. Peyroni, curator of the Les Eyzies Museum and M. Champion, the chief of the technical staff of the National Museum (St. Germain) were appointed by the Minister to supervise the site and catalogue the specimens.

(2) *The International Commission.* At the meeting of the Amsterdam Congress, the general assembly of the Institut International d'Anthropologie decided (24 September 1927), on the motion of

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MM. Comte Bégouen and Mendés-Corréa, to suggest sending a committee of investigation to Glozel. Dr Morlet let it be known that he 'accepted without reservation' this committee which 'offered only objective guarantees'. Nominated forthwith by the office of the Institute and composed exclusively of those who had taken no part in the discussion, it consisted of seven members: M. Hamal-Nandrin (Belgium), M. Absolon (Czecho-Slovakia), Miss Garrod (England), MM. l'Abbé Favret, Forrer and Peyroni (France), M. Bosch-Gimpera (Spain), M. Pittard (Switzerland).

The commission went to Glozel at the beginning of November and excavated for some days, maintaining absolute silence with regard to its proceedings. The journalists present, observing specimens emerging from the ground and the unbounded delight of Dr Morlet, lost no time in announcing that the authenticity of the site had come to be admitted. The commission's report, long and detailed, appeared in the *Revue d'Anthropologie* (24 December 1927). It denounced the falsity of objects of every class, the recent construction of the tombs etc.; even the way in which the ground had been salted was recognized. Beneath a badly replaced lump of turf, the commission encountered a cavity full of freshly disturbed soil, at the bottom of which was an inscribed brick.

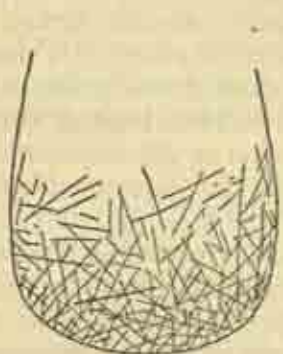
The commission reported unanimously upon the modern character of the documents which it had investigated. But the champions of Glozel, far from admitting defeat, reacted violently. M. S. Reinach, by way of a reply, communicated the same day to the press a little manifesto which he got two of his Academy colleagues to sign as well. It is a choice incident in his career, full of mistakes though it be: 'The admirable discovery of Glozel lacked only' he said 'the highest blessing of all—that with which the Roman inquisition honoured the genius of Galileo. To this extent the Bégouen commission has deserved well of Science, and the loyal soldiers of a just cause owe it their thanks. As for the commission itself and its originator from Toulouse, they will share with the Commissars of 1633 the only immortality they deserve, that of ridicule'. (Signed, S. Reinach, J. Loth, Espérandieu).

3 *The Champion report.* Shortly after the commission's report appeared, M. Champion, who was sent to Glozel officially to draw up an inventory of the objects, produced a report entitled '*Observations techniques sur les trouvailles de Glozel*' (Nourry, 1928). In a very precise and clear manner (thanks largely to his excellent drawings) the learned technician laid bare the true character of the workmanship

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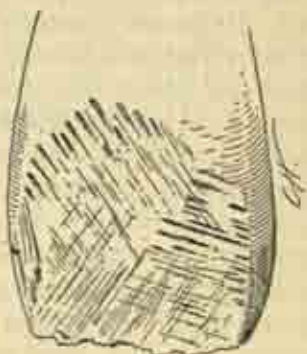
observed on the stone objects from Glozel. The stone in question was generally of a soft nature. The perforations had been made with a steel drill, the sculptured designs with a steel graver of round section (doubtless made from a broken knitting needle). The shaping and polishing had been done with rasps and files, the marks of whose teeth could be seen perfectly clearly on certain specimens. One could even see them on the photographs published by Dr Morlet.

4. *Decision of the Commission on Prehistoric Monuments.* This commission was appointed by the Direction des Beaux Arts, and consisted of MM. Boule, Capitan, C. Jullian, Henri Martin, Verneau, and others, and reported that 'inasmuch as the site did not seem to possess any prehistoric features, they unanimously recommended the Minister not to confirm the provisional scheduling' (10 February 1928).



Cutting edge of neolithic axe
showing nature of polish-marks

(After Champin)



Cutting edge of forged axe
showing marks of metal file

5. *The Research Committee (Comité d'Etudes).* The signatories of the 'Galileo manifesto' and Dr Morlet thought fit to call into existence a 'Research Committee', to counterbalance the effect of the International Commission's report and to consolidate the ranks of their supporters. From 11 to 14 April 1928, a dozen people, including S. Reinach, J. Loth, Depéret, etc., came to Glozel and 'were present at' excavations made by workmen in the clay, and announced themselves 'formally convinced that the finds clearly belonged to the beginning of the neolithic period, without any admixture of later objects'; and they published a report.

That cynical observer, René Benjamin, has taken the curious comedy as the subject of a witty book that has had a great success (*Glozel, Vallon des Morts et des Savants*).

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6. *The Legal Actions.* The newspaper '*Le Matin*', captured by the Glozelians as the outcome of some excavations (crowned with success) carried out by its reporters, published a letter of M. Dussaud's which was not intended for publication, in which the learned scientist formally accused young Fradin of being the forger of the inscriptions. Then the great daily caused him and his grandfather to bring an action for libel against M. Dussaud.

The affair thus reached the law courts in a most paradoxical form, with the Fradins in the rôle of plaintiffs and accusers. The action could lead to no good result; the only question of which the court could take cognizance was that of libel and not that of its foundation. It was to be feared, on the other hand, that the public would regard a conviction for libel as a proof of authenticity. The Société préhistorique considered that, to vindicate the honour of its subject, it should put a stop to a scandal which disgraced French science. It felt bound to adopt a course of action which should open all eyes to the truth and to arrange matters so that the Law itself should unmask and punish the fraud.

The matter was legally possible. In fact, though there had been no sale of objects except to Dr Morlet, one could denounce as felonious the act of taking money from visitors for exhibiting modern productions in the guise of antiquities. Actually a well-grounded accusation of this kind would lead to the issue of a search-warrant and to an official enquiry by the police authorities. One might hope by this means to obtain for the public decisive proofs of a different order from those already furnished—proofs, moreover, which the champions of Glozel could not set aside as the outcome of professional jealousy and so forth. This result was, in fact, actually achieved.

The secret of the decision was well kept. Maître Maurice Garçon, legal adviser of the Société préhistorique française, arranged all the formalities, and on a charge made on 24 February 1928, before M. Python, magistrate at Moulins, a search directed by Dr Regnault, then President of our Society, was made the following day at Glozel. There were found the débris of manufacture, and a certain number of objects were seized and submitted to the expert examination of M. Bayle, Director of the Service d'Identité judiciaire at Paris.

7. *The Bayle report.* M. Bayle adopted methods both exacting and thoroughly scientific. In many criminal trials of the past one had watched him unravel painful mysteries. His knowledge was profound, as should be the knowledge of a man upon whom the life of an accused person may depend.

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M. Bayle began by a general examination which quickly led to the detection of certain evidence of modern fabrication in the objects submitted to him. He proceeded to an exhaustive examination of all this evidence. At the request of the magistrate, M. Bayle sent to him in the spring of 1929 the only portion of his report which was finished—that dealing with the inscribed bricks. The gist of his report has been published.

M. Bayle affirmed that the bricks had not been baked and that they dissolved at once on being placed in water; that some of them had never been buried at all; that they contained as impurities tiny fragments of modern origin, particularly strands of cotton and coloured by aniline dye, pieces of moss and grass still retaining chlorophyll, etc.

Thus, by methods which excluded all archaeological considerations, the learned specialist succeeded in triumphantly proving fraud.

It may be said that the publication of this report brought down the curtain on the farce of Glozel. The great dailies and the general public are no longer interested in it; and since the scientific world had already made up its mind long before, the affair was left without any genuine support.

THE PRESENT STATE OF AFFAIRS

Last September, before finishing his report, M. Bayle was assassinated. He was a martyr to his profession and fell as the victim of one of those criminals whose misdeeds he had frequently shown up by the methods of his department.

At the present moment the action brought by the *Société préhistorique* is being delayed until M. Bayle's colleagues have finished drawing up their report. But, as we have already said, the result is now a foregone conclusion; correct opinions have been formed and so far as this is concerned the desired object has been attained. There remains little more than the punishment* of the offender.

True, out-and-out Glozelians will not then, and never will, admit their mistake. But their ranks are strangely depleted. M. Depéret is dead; the two pupils who fought by his side abandoned their Glozelian positions after the Bayle report. Certain of the Glozel champions who were noted for the violence of their statements, and their impertinence to those who contradicted them, appear to have admitted the truth.

* In view of the facts already stated one cannot help hoping that this may not be vindictive.—TRANSLATOR.

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But, being doubtless reluctant to submit to the humiliation of publicly confessing their error—a course which would involve also the withdrawal of their ill-judged remarks—they are content to remain silent.

As for Dr Morlet, he has attained Nirvana, where no event has power to disturb his serenity; and he passes through life with his eyes fixed on the Glozelian paradise! Science rejected the Truth he offered it, so he appealed to the great heart of the People; but the People has failed him. He appeals now to future generations; and then, surely, at the last there will come a day. . . .

Outside the ranks of orthodox Glozelians, clinging to the 'neolithic' hypothesis, there is a group of heretics. Each has his own solution to offer and each can translate the famous tablets. M. Camille Jullian continues to read some of them as a cursive script of low Latin. Lt.-Col. de St. Hillier, a retired African officer, translates them all in the light of Phoenician and of Arab roots. He has even published a 'Glozelian grammar for general use' (*Petite Grammaire glozélienne à l'usage de tout le monde*, Moulins, 1927). The Dutch Pastor Voelter deciphers Fradin's bricks as Hebrew, and has just published a huge volume on the subject (Strasbourg, 1929). M. J. Celajor, a Spaniard, explains the Glozel inscriptions by means of Basque! M. Cartereau, a retired road-surveyor of Angers, has from his office table discovered dozens of proofs of authenticity, and is convinced that he has found in this wonderful site the sources of Gallic writing. M. Butavand, a retired civil engineer, has translated Glozelian by means of Greek roots and the Tifinagh script. . . . Each of these gentlemen is almost alone in his opinion, but seldom has any mercy on the rest. Lt.-Col. de St. Hillier in particular is distinguished by the rudeness and severity of his style. He himself wrote his 'Glozelian Grammar' in order to 'establish once for all a sane explanation, free from literary verbiage and based upon a certain and dogmatic foundation' (p. 9).

We are not so sanguine as to expect, of course, that Dr Morlet, M. Salomon Reinach and the little group of persons round them, will ever perceive their mistake. It matters little. In actual fact, whatever may be the verdict of the Law with regard to the forger, the Glozel affair has been shown up so thoroughly that it will never more be a danger to science. One must hope, also, that all the trouble it has created will not have been in vain, and that it will have taught a useful lesson.

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THE UR EXCAVATIONS

We reprint in extenso Mr Woolley's communication to *The Times* (25 February 1930) because of its importance, and we wish to acknowledge the permission accorded by the EDITOR of *The Times*, by MR WOOLLEY and by the DIRECTOR of the British Museum.

A fully illustrated account of the lower layers was published in the *Illustrated London News*, 1 March.

'In my last report (published in *The Times* 11 February, p. 13) I described the discoveries in the great shaft which we are sinking in the town site. At that time we had reached a depth of 29 feet, and had found and removed the walls of eight distinct super-imposed buildings. Now we are at 56 feet below the level, which on a conservative estimate we date at 3200 B.C., and outstripping calculation in centuries have to deal with the very beginnings of man's settlement here in the River Valley.

'Below our eighth building there came a change. No more walls of buildings appeared and the soil was little more than a mass of broken pottery. The explanation was soon forthcoming. A brilliantly coloured ring of red and green and pale yellow proved to be a burnt-out kiln of bricks lined with fire-clay, and in the ashes which filled it there were still the clay pots of the last firing. More kilns came to light, covering the whole area in successive levels, basins lined with cement bricks for the kneading of the clay, potters' tools made of baked clay, and pebbles for burnishing the pots. It was a prehistoric factory, and the dense mass of sherds which buried the site was made from the "wasters" discarded by the potter. As the kilns lay four deep the industry must have lasted for a long time, and for so long the regular sequence which marked the upper strata was interrupted; but below the factory level it began again.

'As we went down, the Jemdet Nasr pottery painted in black and red and buff which had characterized the eighth house-level grew scarce, and was supplanted by plain sealing-wax red wares with an admixture

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of the black and green pottery familiar to us from Al 'Ubaid. Gradually the proportion of the black and green ware increased, and at last the red vanished and only the Al 'Ubaid wares and plain pottery remained. Then at 42 feet, just when a belt of clean sand made it look as if we were reaching the bottom of all things, graves were found containing plain clay vessels of shapes new to us and, generally, in each grave a cup of that painted Al 'Ubaid ware which, common as the fragments of it are, was represented hitherto by only three fairly complete examples.

'The graves lay thick. Some contained nothing but the body, with others we found simple beads and weapons of stone, but such were rare, and even the clay vessels were not numerous. Whereas the fragments of painted pottery showed a wide range of design, here the complete pots were all of one shape and all decorated in the simplest manner with plain bands of colour. But below these there came more graves, and in them painted vessels of different shapes began to take the place of the plain pots and their decoration grew more and more elaborate.

'The upper graves marked the degeneration of the Al 'Ubaid period, the lower illustrate its zenith. In three of the lower graves we have found objects of a different sort, painted clay figurines of women grotesquely modelled on an archaic convention. Too delicate to be dolls, these queer, slender figures—also one of a painted bird with outspread wings—must be connected with the religion of the race which inhabited Ur before the Flood.

'Already we have reached the levels which mark that disaster, and although one more stratum at least has to be probed, we know from the results of trial shafts sunk in the cemetery area, where the phenomena are precisely similar, that virgin soil cannot be far off. In those shafts the Al 'Ubaid fragments were the last things to be found before we came on clean sand, which we pierced to a depth of some 2 feet below the level of the sea. Thanks to the extraordinarily clear stratification of the soil through which we have dug this season, we have got classified material forming an assured basis for the chronology of Southern Mesopotamia from the time of man's first settlement in the marshes to the close of the Sargonid period in about 2600 B.C.

'For the last ten days work has been going on along the line of the city wall, and though it is too early yet to speak of results, one discovery deserves to be signalized. Two inscribed clay foundation-cones lying against the ruins of the a brick wall led us to start the clearing of the building, and almost at once there came to light in the wall's

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thickness the small brick-built foundation-box in which stood still undisturbed the copper figure of the King, bearing on his head the basket of mortar and, before his feet, the stone model brick inscribed with the dedication of the building. It was a temple of Enki the water god, and its restoration by Rim-Sin, King of Larsa, whose statuette we had found, gave its title to the ninth year of his reign'.

In his third report to *The Times* (8 April, p. 15) Mr Woolley writes of the walls of the ancient city, the canals and water-channels traced, the great rampart—26 feet high and from 70 to 90 feet wide—and the temples which have been found.

THE GORGE OF PETRA

MR GEORGE HORSFIELD, Inspector of Antiquities in Transjordan, has sent us a note on Petra, to which we have added a few impressions of our visit there in 1928. The combined result is printed below :—

Petra, from her geographical situation—between the opposing powers of Syria and Egypt—was subjected to all the cultural influences of the pre-Roman world, attracting, no doubt, by her commerce, a thriving cosmopolitan population, gathered from east and west. The basis of her population consisted of Semitic Nabataeans who had conquered the Edomite lands. These Arabs, coming direct from the desert, were uncivilized, but they soon became rich from their strategic position astride the great trade routes, which met in their neighbourhood. By the second century B.C., their wealth, their ambitions and the increasing weakness of Egypt and Syria in decline, enabled the kings of Petra to extend their kingdom and influence from the Red Sea to the Euphrates.

The extant monuments of this period are mostly tombs, carved from the cliffs of red Nubian sandstone which enclose the city on all sides. They reflect two definite and distinct influences—the one occidental, marked by an Asianic perversion of the classical style; the other oriental and of the simplest kind, being expressed by a pylon with a plain surface.

The monument (plate 1) which most clearly reflects these cultural influences is that which has aptly been called the Khaznah (treasury). It is indeed a treasury of sculpture, combining human, animal and purely decorative motives. It has the quality of great architecture; and perhaps no other monument in the world has a setting of such majestic

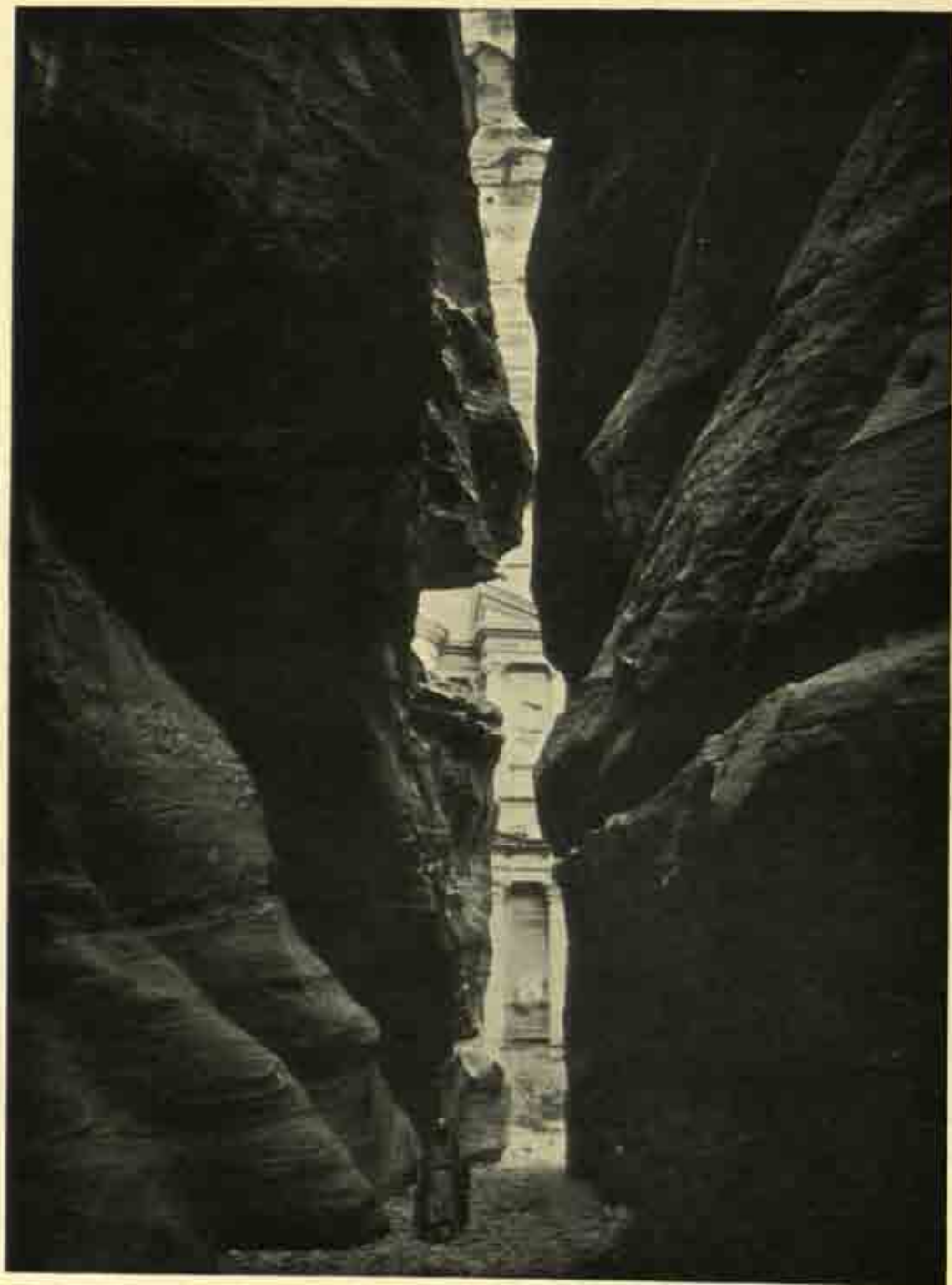
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wildness. The style may be described as Asiatic Greek ; it is carved in the living rock, and the execution displays an admirable feeling for an unusual material.

The first sight is most impressive. The only approach to Petra lies along the rocky bottom of a dry water course, between the precipitous sides of a deep gorge, no wider than a dark narrow lane in some oriental town. One rides down this echoing chasm on the back of a half-starved pony whose hesitating gait increases one's feelings of apprehension. Suddenly the gloom lifts and a vision of golden rock breaks upon one, framed between the craggy walls of the canyon and resplendent in the brilliant morning sunlight. This is the Khaznah. It is the first monument the visitor meets on his way to Petra, and it is by far the most impressive. As one gradually emerges into full daylight, one catches sight of other carved porticoes and pediments perched high up on the distant mountain sides. But these, however interesting in themselves, would hardly have attracted so much attention, were it not for their setting of purple and red sandstone, bathed in an atmosphere of radiant sunlight. The fame of Petra is founded largely upon its inaccessibility during the 19th century. To have been there at all was something of an achievement, qualifying one as an explorer in that romantic age. Though now reasonably safe, the journey is not an easy one and it was once both arduous and risky. There is a good motor road from Ma'an, the present terminus of the Hejaz railway, to Elji, distant from Petra about 4 or 5 miles ; and the inhabitants have discovered that it pays better to provide horses for a continual stream of visitors than to hold up a few hardy adventurers. (Their change of opinion dates from the visit of an armoured car section). The romance of Petra lies in the *approach*, and the gem of this is the Khaznah. The arrival is something of an anticlimax for the romantically disposed. In mere rocky grandeur Petra itself is surpassed by Mont Serrat or by the Algerian gorges of Constantine and Meshounesh.

The purpose of the Khaznah and the date when it was made are both of them unknown ; but never again at Petra was such a combination of sculpture and architecture attempted, though the general lines of the design appear again in the Deir and in the Corinthian monument. Hellenistic architecture has disappeared in Palestine and Trans-Jordan except for the monuments at Petra and Arak-el-Amir, and the tombs in the Kedron valley, Jerusalem. The so-called tomb of Absalom at Jerusalem has a close affinity with the circular motive that crowns the Khaznah ; and that of St. James with some of the

PLATE I



THE GORGE AT PETRA, SHOWING THE KHAZNAH
Pk. Anurita's Colony at Jerusalem

facing p. 226

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square free-standing monuments adorned with cornices and semi-detached columns which are found at the mouth of the Sik. For a comparison with other monuments designed with classical motives, one must go to the rococo of the Renaissance in Spain and Italy, more particularly Spain and Sicily, which have endured a peculiar Semitic influence denied to the rest of Europe. The tomb of Sextius Florentinus is probably Hellenistic in date and certainly in style; and from the Turkomanya tomb and the Madain Saleh inscriptions we know the curses and penalties employed to ward off those intruders, who seem to have haunted the designers of these elaborate tombs. Sextius Florentinus is apparently an accursed intruder. The Madain Saleh tombs, which date from the 1st century A.D., are vouched for by the inscriptions cut on them; they give us also the interesting information that they were carved by sculptors bearing Semitic names. These tombs are remarkable for their monotony and for the unfinished crudity of their interiors. The Hellenistic tombs at Petra are notable for the care with which they are set out and cut and for their exquisite interior finish, consisting, in many cases, of a fine tooling of carefully engraved parallel lines at an angle of 45 degrees. Those of the Madain Saleh type, though larger in size, are not more elaborate in detail. We have the date of the one carved to the order of Queen Shaquilath, mother of Rabel II (A.D. 71-106) for her brother Oneishu. Great pains have been taken in the cutting of the façade with its architraves, cornices and crowning steps; but inside it is as rough as a natural cavern, lacking even the elegance that nature imparts to her work. Amrit (the Ancient Marathus) on the North Syrian coast, whose ruins probably date from the Phoenician period, offers some interesting parallels, connecting the smaller crow-stepped pylon-tombs of Petra and Madain Saleh with the Khaznah. There, out of the living rock is cut a circular pedestal, ornamented with lions; from this rises a cylinder with a rounded top, decorated with a row of stepped battlements, which stand out slightly from the general surface and are supported by square corbels. A similar cylinder lies in the broken pediment of the Khaznah, tricked out with columns, carvings, and cornices, supporting a convex cone, crowned with a capital.

The pylon-tombs are uniform in character, and their use, with little or no variation in detail, continued at Madain Saleh alongside a variant which has borrowed classical details such as columns, cornices and architraves. The tombs at Madain Saleh are dated; and since exactly the same conditions are found at Petra, it may be concluded

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that these plain flat-fronted battlemented pylon-tombs are the most primitive type. It was in use in all periods, and probably preserved an older burial custom ultimately of Mesopotamian origin. From a comparison of the tombs at Petra with those of Madain Saleh it may be inferred that the tradition of Hellenistic architecture was dead by the beginning of the 1st century A.D. In the place of experiments and variations in the classical style, a monotonous variety of the one pylon-form was adopted. The monuments were designed and executed by native artists, who copied one another without venturing to add a new motive or to develop a new idea.

The collapse of the Nabataean kingdom in A.D. 106, the formation of the Roman province of Arabia, with its capital at Bosra in the north and the development of the Red Sea route as the line of communication with the Yemen and India, combined to divert the rich traffic on which Petra's economic life was based. The glory of Petra passed with her declining trade, and she was left with nothing but the memory of her former greatness. Hidden in her mountain fastness and surrounded by the desert, she was no longer the emporium of the East, the capital of kings ruling from the Red Sea to the Euphrates, but merely an obscure and half forgotten provincial town.

Though temporarily revived under a Byzantine administrative measure to become the capital of Palestina Tertia, the seat of a bishopric and a place of exile, Petra eventually sank into an utter oblivion from which she was only rescued again by the romantic curiosity of the explorers of the last century.

THE DESICCATION OF AFRICA

Mr H. S. W. EDWARDES writes :—

'The controversy over desiccation in Africa is to keep us interested for a long time yet. Mr E. W. Bovill's article in ANTIQUITY (III, 414-23) will I hope draw a reply.

'The question is often confused by a failure to distinguish between geological time and historical times.

'Fluctuations may have occurred in the remote period when ice covered a large part of Europe, but is there evidence of any temporary improvement in historical times, say since 5000 B.C.? Throughout the Sahara, even in the intensely desiccated area east of Kufara, Neolithic implements are found. The owners of these implements had no camels, and almost certainly no transport animals of any kind.

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They must have found water at intervals of 30 miles or so, and vegetation capable of sustaining a fauna for them to hunt, or of providing them with grain. The flints found by Col. de Lancey Forth, (*Geographical Journal*, Jan. 1930), were more than 100 miles from water and in absolute desert. I don't know how these compare in age with the Nile Valley flints, but their age merely affects the rate of desiccation. (That any action of these folk themselves could have affected the matter is incredible).

'In Roman times, when Cyrenaica carried a large population, the rainfall may already have fallen close to the line below which corn cannot be grown. A small further fall would then throw great areas out of cultivation. One would like to know more about the Roman bridges. Are the rivers they cross still perennial? The Sokoto river, above the city, is bigger than the Thames for two months in the year, and bone dry for six months. I have seen El Djem and its surrounding desert. Is there evidence of the vast irrigation system that must have existed if such a city was to be fed with corn not raised by rainfall? Man may have helped the desert to advance by failing to withstand it, by allowing the fatal goat to destroy the protecting bush, and by reckless burning, but his sins of omission and commission can be but minor factors. The evidence of the Neolithic finds throughout the Sahara seems to me conclusive that true desert conditions have only come about within the past 10,000 years or so, and they have spread steadily and continuously down to the present day'.

DIGGING STICKS

Among the various ethnological specimens which have been found in the Sudan recently are stone hammers for beating copper and stone or clay rings. These rings are too large for spinning whorls and expert opinion varies considerably as to their use. Some of the uses suggested are mace heads, balancing weights for throwing spears, weights for nets, weights for digging sticks, etc.

The primitive bone-headed spear in use until recently on the Sobat river had no balance weight on the end nor can I trace any net which was weighted. The casting net or basket-trap was generally in use among primitive peoples.

The accompanying plate, from a photograph taken by me, is both a link with the vanished past and an illustration how primitive man obtains great results with the least possible bodily fatigue. It shows Dinkas using their digging sticks to break up the ground after burning

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off the grass and weeds. These sticks vary in length from ten to fourteen feet, and are about the thickness of a man's wrist at the sharpened end, which is hardened in the fire.

These digging sticks are not artificially weighted and are different implements from the Arab dibber. The long sticks take the place of a plough or heavy hoe. The Arab dibber is a curved stick which is pushed into the soft mud or earth (after flood, rain or irrigation) by the big toe. It is then given a circular motion and thus leaves a conical hole into which the sower drops the grain and closes the hole with a foot. The dibber is not weighted and is used for the planting of cotton, dura, etc.

A. E. ROBINSON.

PRIMITIVE HUTS*

In most popular text books on 'Ancient Britain' or the prehistoric period it is assumed that thatched huts had central roof poles. The writer suggests that the people who possessed sufficient intelligence to build corbelled stone huts or mud huts like those of the Nile dwellers without arches or supports could have employed methods of construction, thatching and so forth similar to those now used in Africa.

The Sudan *tukl* (circular hut) has no central pole. The conical top or roof consists of a very light framework of thin branches and it varies in shape from a perfect cone to that of an open umbrella. This framework is made of radial poles fixed into a circumferential base of flexible withies; and it is thatched and complete before it is lifted on to the walls of mud, brick, dry stone (without mortar), or straw, to which it is affixed. If the circular walls are of straw it is usual to drive four stout forked poles into the ground so as to take the weight of the roof. In most of these huts the cooking is done over a fire in the centre of the hut and the smoke keeps out mosquitoes, etc.

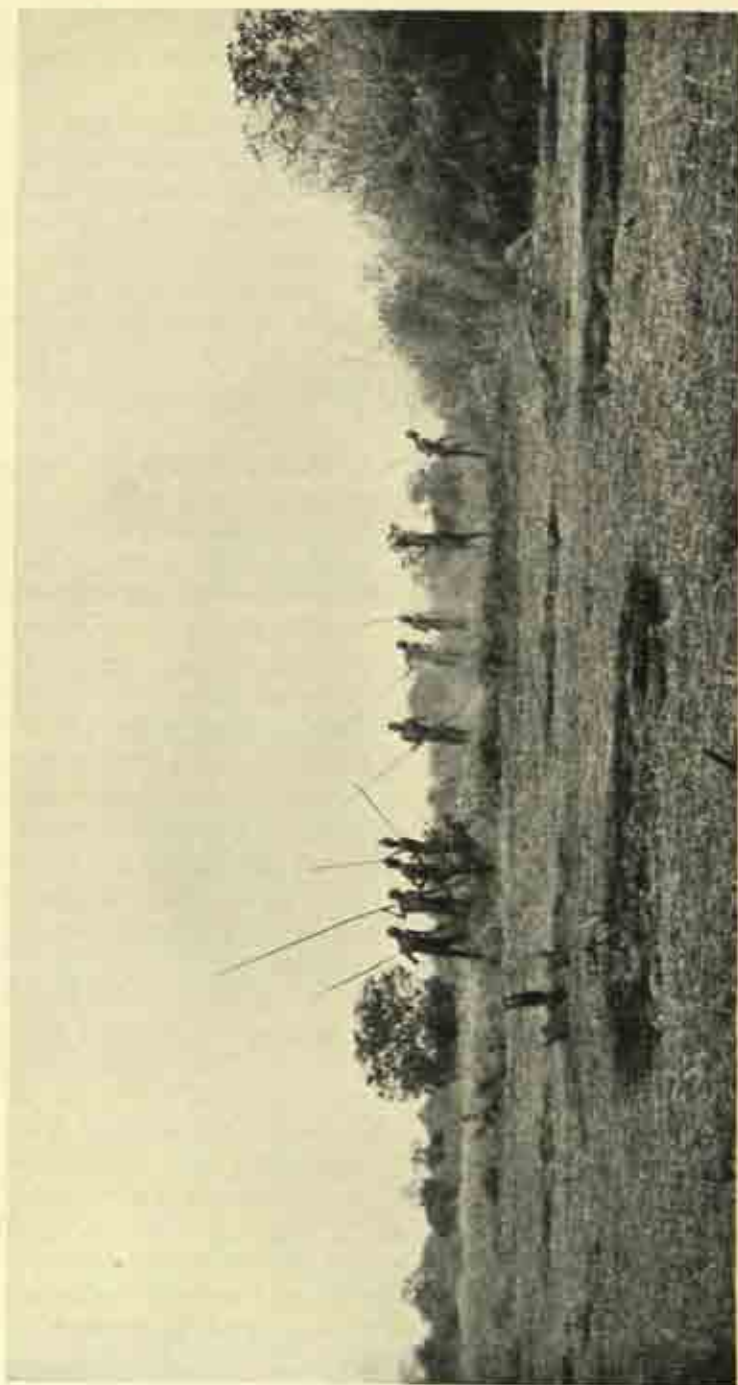
I suggest that the huts discovered by Mr H. S. Toms (see A. Hadrian Allcroft, *Earthwork of England*, p. 253) may be huts of the *tukl* type.

I saw huts made entirely of reeds in the treeless marshes near the mouth of the Danube forty years ago and although of a similar type to the *tukl* they were not as substantial nor as well finished as the African product. Some of the restorations which I have seen recently appear to me impracticable, since the structures (unless made of heavy timber) would not bear the weight of a thatcher.

A. E. ROBINSON.

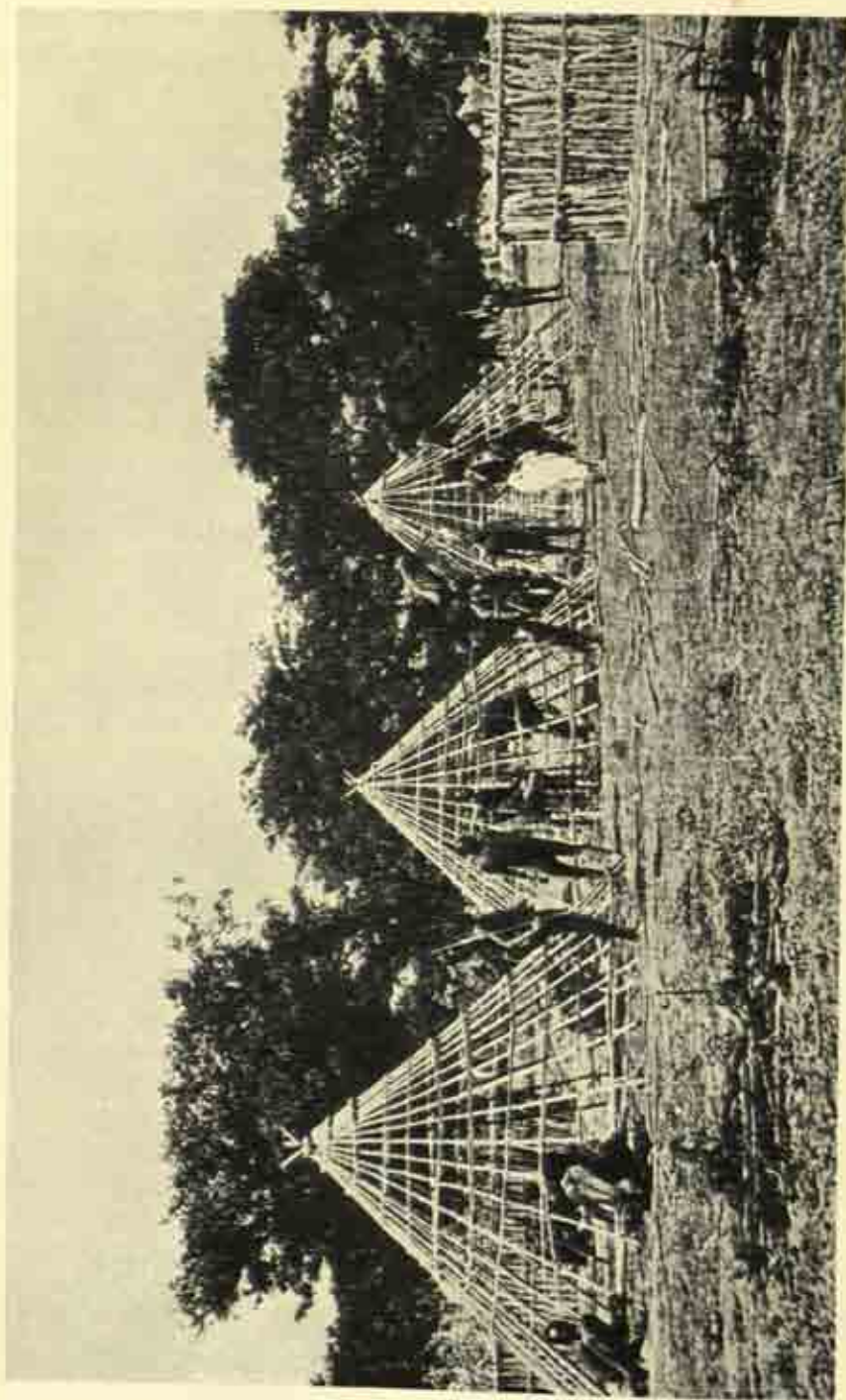
* We are indebted to Mr G. N. Morhig, of Khartoum, for his good offices in connexion with plate III, which is reproduced from one of Mr Robinson's photographs.

PLATE II



DINKAS USING 'DIGGING-STICKS' FOR BREAKING UP THE GROUND AFTER BURNING OFF THE GRASS, ETC.
Pg. A. E. Robinson

PLATE III



HUT-BUILDING AT RUMER, BAHR-EL-GHAZAL PROVINCE, SUDAN
Ph. A. E. Robinson

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A POLISHED AXE FROM SOUTH AFRICA

The finding by Professor Drennan in South Africa of a polished stone axe associated with kitchen-midden material (*Cape Times*, 13 February 1930) is a matter of some interest to prehistorians. Very few polished axes have ever been found in South Africa, and this is the first time that an association with a definite culture has been demonstrated. It is true that rare instances of ground edges occur in Wilton industries, but no true polished axes have been found. The new axe comes from a small rock-shelter at Witsands, beyond Kommetje, where excavations have only yielded kitchen-midden material. The ground surface is greater on one side of the tool than on the other, extending two inches from the edge on the one side and only half an inch on the other. In this respect it resembles the other polished axes found in the Union of South Africa and also certain examples from Australia; on the other hand the well-known specimen from Battlefields, Southern Rhodesia, is polished all over and recalls rather the type found in the Congo. Professor Drennan considers that the newly found axe was undoubtedly hafted, as a polished groove exists at the butt end of the tool round which a withy could be bent and then fixed with gum and thong. This groove appears to have been made by pecking and then rubbing. The material from which the tool is made is a local rock.

Professor Drennan has also described in the *Journal of the Medical Association of South Africa* for November 1929 an important find of human bones in a sand quarry on the Cape Flats near Cape Town. The industries found comprise kitchen-midden and Still Bay types. Some of the bones are of the ordinary Bushman type and with these Professor Drennan associates the kitchen-midden tools. But a skull and a femur belong to quite a different and more Australian-like individual, and perhaps may be associated with the Still Bay industry. Much controversy has raged as to the former existence in South Africa of an Australian-like race. Rhodesian man has been cited as an example of this proto-Australian type and recent researches by Mr Zieve at Cape Town seem to support this view, as perhaps also do these newly-found human remains. The cranium is almost complete and the dimensions are identical with those obtained by Hrdlicka from an examination of 190 South Australian skulls, though the angular measurements are by no means identical and the face is in several respects decidedly negroid. The prominence of the brow ridges however is a special feature of the skull which distinguishes it from Bushman or Bantu specimens.

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Calculations from the size of the femur suggest that the individual may have been about 5½ feet high. The former wide extension of the Australian and Melanesian races has been lately stressed by Professor Paul Rivet. Examples of the skeletons of both races seem to occur in South India, and if this is the case it is quite likely that South Africa was not unknown to these peoples.

M. C. BURKITT.

BREWING IN ANCIENT TIMES

The Gesellschaft für die Geschichte und Bibliographie des Brauwesens, E.V. (Institut für Gärungsgewerbe, Berlin) has for its chief object the publication of monographs on the history of brewing. One of the first of these is by Dr Huber, entitled *Bier und Bierbereitung bei den Völkern der Urzeit: 1. Babylonien und Ägypten*, 1926. In this Dr Huber discusses beer and brewing by the peoples of Babylon and Egypt. His evidence, which is based on the rather scanty records obtained from seal-cylinders and monuments in tombs of the period, indicates that agriculture was practised as far back as 6000 B.C.* Now agriculture has always been associated with the baking of bread and the brewing of beer, and there is abundant evidence in fact that both these occupations were practised in these early times. But malted barley is the starting-point for the brewing of beer, just as wheat is for bread, and here again we have evidence of the two crops cultivated at the same time and as of equal importance. Of course it must not be assumed that barley only was used for beer, since 'mixed' beers, which were made from a 'grist' containing barley with 50 to 70 per cent. of wheat, were also brewed.

The importance of beer in Babylon and Egypt has probably not hitherto been fully recognized and some of Dr Huber's conclusions are of great interest. Thus we learn from Babylonian pay-lists and inscriptions that beer was drunk in large quantities, but that rations were fixed according to the class of employment. Officials were provided for at the liberal daily rate of about 8 or 9 pints, brain workers and harem women were allowed 5 pints, though in the latter case the beer was a sweeter type, while the labourer had less than 2 pints of a very weak beer.

By the time of Hammurabi the importance of beer had increased to such an extent as to render necessary strict laws controlling its

* All absolute dates before 2000 B.C., in any part of the world, are more or less conjectural.—Error.

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preparation, price and sale. Daily offerings made to the deity Ishtar—according to the ancient belief that gods required the same form of sustenance as man—contained barley and two pints of good strong beer. In medicine also, beer was frequently used both as a cure and as a means of diluting the less pleasant constituents, and such forms of medicine no doubt attained a measure of popularity, though the records are silent as to whether they were effective.

In Egyptian times the importance of beer as a national drink was supreme. It was drunk by people of all ages and classes, and even workmen were content to receive it as a part-wage. The use of wine was almost entirely supplanted, for the art of brewing had passed largely into the hands of the housewife. Needless to say the beers must have varied considerably in quality, and Dr Huber's work leads us to believe that the beer of the time was a turbid, easily-infected liquid prepared under the most primitive conditions. Hops were not used, and the beer had to be drunk through a long tube in order to avoid the sediment. Perhaps the Egyptians considered there was 'no such thing as bad beer', though that the dangers of excess were realized is shown by the fact that the young were warned that 'when thou drinkest till the demon seizes thy heart . . . the next day wilt thou be unable to work'. Dr Huber's most remarkable achievement, however, is his description of the reliefs from ten Egyptian tombs, which, when pieced together, give 23 scenes representing the complete brewing process of the time.

Many Egyptian words connected with brewing may be traced from the corresponding Sumerian-Babylonian equivalents and Dr Huber's work therefore also throws an interesting light on the relative ages of these two civilizations which, as we have seen, are intimately connected with that of Civilization itself.

JULIUS GRANT.

SURGERY WITH FLINT

The notes which follow deal with some surgical operations performed about thirty years ago by the Loucheux Indians* of the Yukon Territory of Canada. These Indians had not at that time been spoiled by too close a contact with white men, and were in what might be described in a general way as a 'neolithic' stage of culture; consequently this record of their skill in surgery is of some interest for

* This name is believed to cover the Tukukthukutchin and the Tatlitkutchin sections of the Kutchin tribe, one of the Athapascan language-group.

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the sake of the comparison that may be drawn between them and those prehistoric peoples who are known to have practised quite serious operations, such as trepanning, with success.

The facts were communicated to the writer by Mr George M. Mitchell, of Quebec; and he must be considered an authority seeing that he lived with one of these tribes for more than two years, was raised to the rank of chief, and also obtained the closest insight into their methods by personal experience.

In February 1899, Mr Mitchell found himself near the summit of the Ogilvie Range at approximately lat. $64^{\circ}45'N$, long. $134^{\circ}45'W$. A tree which he had occasion to fell slipped backwards off its stump instead of falling clear, and the butt struck him on the centre of the left knee, breaking the patella. This injury made him quite helpless, as, when the patella is broken, the limb cannot be straightened by muscular power. The nearest civilized surgeon, being more than a thousand miles distant, Mr Mitchell had no choice but to submit himself to the local 'savage' practitioners. These in his case were the women of the tribe to which the men of his party belonged; surgery among these people being a function of the women and not of the men.

His retainers accordingly conveyed him to their camp on a toboggan drawn by dogs, after strapping his leg to a long wooden splint, and though they covered the distance of sixty miles in less than eleven hours the leg was naturally very much swollen when they arrived. The most expert of the women, assisted by a younger girl who happened to be the chief's wife, immediately gave the leg a careful examination, and, as she decided that an operation should be performed, preparations were begun without delay, though it was then the middle of the night.

As a preliminary they fixed the leg rigidly into a pair of wooden splints that extended from the thigh to the ankle and were shaped carefully to fit: these were made very quickly and skilfully by some of the men. Then came the knife—a flake of flint an inch and a half in breadth and having a natural cutting edge, that was struck on the spot with the back of an axe from a rough lump of flint that was kept at hand for fire-making. Mr Mitchell later asked the chief why they had used flint instead of the very good Sheffield knives which they possessed in abundance, and was told that a fresh flint knife was used because it was clean, whereas a steel blade would have been dirty. But although this answer might be taken to suggest that the Indians had some idea

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of the importance of avoiding infection Mr Mitchell does not remember that they made any attempt to wash the leg, or even their own hands, before they began to operate.

When everything was ready, and a crowd of Indians had packed themselves into the lodge to see the spectacle, the chief's wife proceeded to the actual operation under the careful instruction of the older woman; the latter, though she had much more knowledge and experience, was handicapped by possessing a tender heart, whereas the former thoroughly enjoyed inflicting pain. She made three cuts: one about three inches long down the inner side of the knee, one crosswise below the knee to the outer side of the leg, and a third, corresponding to the first, up the outer side; and then, seizing the flap of skin that was thus released on three sides, she flayed it upwards so as to expose the patella. This proved to have been split horizontally, the two fragments being separated from one another in a vertical direction.

Now it is clear that their preliminary examination had shown the two women that this was what they would find, for in the meantime the men had been busy preparing a number of small pins of caribou bone. These the women inserted into the tissue just above the upper fragment and just below the lower one, leaving their heads projecting slightly, and then, taking caribou sinew that had been pulled out to about twice the thickness of the coarsest sewing thread, they wound it backwards and forwards round the pins so as to draw the two fragments of the patella together. When the fragments were firmly united in this way they replaced the flap of skin and bound it into place with thongs, without sewing up the wound.

During the operation Mr Mitchell became unconscious several times, and he remembers that whenever he came to he found small bundles of deerskin containing hot sand or live coals in the palms of his hands. He thinks that these were only applied as a last resource, when the operators feared that without them he would not regain consciousness at all. He thinks that the whole operation may have taken two or three hours to complete.

Subsequent treatment consisted of the application every three or four days, for about a month, of a hot poultice made of various herbs and the inner bark of a willow; and whatever the qualities of this compound may have been the wound healed in six or seven weeks without any infection. The bone pins worked their way out through the skin in the course of the ensuing three years, and the sinew appears to have been absorbed.

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Mr Mitchell remained on his back for about three months, and after a further six or eight months was able to undertake the long return journey down the Peel and up the Mackenzie rivers. During the whole of this time he continued to wear his splints and to use a long two-handed pole, the Indian substitute for a crutch. On his return to civilization the doctors found that the patella was perfectly knit, and though a long period of treatment was required to restore the withered muscles and loosen the stiff joint the leg was eventually brought back to a perfectly sound condition.

However, as this operation is being considered as an example of surgery as practised by a primitive people, it would be an exaggeration to give the Indians full credit for the complete recovery that Mr Mitchell eventually made. His own opinion is that an Indian who had suffered the same injury would have worn his splints and used a crutch for the rest of his life, as the risk of breaking the leg a second time would have been too great to allow him to dispense with them, and the Indians have no knowledge of massage or any other artificial means of restoring suppleness and strength. But even so the mere fact that such an operation could have been performed successfully, and without killing the patient through shock, tetanus, gangrene, or whatnot, is sufficiently remarkable in itself when all the circumstances are taken into account.

Another interesting case that came under Mr Mitchell's own observation was that of a young Indian who was shot accidentally during a bear-hunt—a rifle bullet entered his chest from the front, just above the heart, was deflected upwards, and came to rest in the muscles of the shoulder between the back of the neck and the scapula. The women who examined him were puzzled at finding no wound of exit, but proceeded to search for the bullet in the manner of civilized surgeons with flexible probes, made out of pliant shoots of willow, which they inserted at the wound of entry. Having eventually located the bullet in this way they removed it through an incision in the patient's back. After his recovery the patient seemed to be none the worse, and returned to his ordinary avocations.

Perhaps the most remarkable point in this case was that the women were careful to leave the probes sticking in the wound after they had extracted the bullet, and only withdrew them by degrees as healing progressed outwards from within. They were evidently quite aware of the danger of allowing a deep gunshot wound to heal superficially while any danger of infection at the bottom remained.

It appears, however, that in spite of their undoubted skill these

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Indians consistently refused to carry out any kind of amputation. Mr Mitchell noted this on several occasions, and quoted the following case as a rather extreme example. An Indian was brought in whose arm had been clawed by a bear; most of the flesh had been torn off the upper arm so that a good part of the humerus was exposed, and bleeding had only been stopped with great difficulty. The chief asked Mr Mitchell's advice as to what should be done, and, as it was clear that the arm could never be serviceable again, he suggested to the chief to have it cut off at the shoulder—this being an operation that was well within the powers of the skilled women of the tribe. However the chief refused point-blank, and simply had dressings applied; and as a result the man, though he survived, was condemned to a miserable existence with a withered limb permanently bound across his chest. Mr Mitchell never managed to satisfy himself as to the real reason for this dislike of amputation, but believes that some religious scruple may have been involved.

ANGUS GRAHAM.

EXCAVATIONS, 1930

When this number appears the digging season will have opened in Great Britain. The event of the year will be the excavation of Verulamium, the Roman mother-city of St. Albans. The site has been kept free from modern buildings through the public spirit and foresight of the owners. The complete excavation of the southern portion only will be a matter of years. The work will be directed for the Society of Antiquaries of London by Dr Mortimer Wheeler, M.C., Keeper of the London Museum. We hope that it will be possible, if not this year perhaps later on, to make a thorough examination of the pre-Roman defences, which are constructed on a colossal scale. The excavations necessitated outside Colchester by the cutting of a wide by-pass road should yield most important comparative evidence. Indeed the two sites have much in common.

Wessex is, as usual, well to the fore, and although detailed information is not yet available, we know of at least three important new undertakings in addition to such hardy annuals as the Meare lake village and Windmill Hill.

Recent Events*

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

An International Congress of Anthropology and Archaeology is to be held in Portugal between 21 and 30 September next. It will begin at Coimbra, continue at Oporto, and conclude at Lisbon. Participation in the Congress is open to members of L'Institut International d'Anthropologie (subscription 40 francs a year, which includes the *Revue d'Anthropologie*) and to others who send 40 francs to the Secretary of the Institute (15 rue de l'Ecole de Medicine, Paris) from whom a detailed programme of the Congress may be obtained. The Congress will be divided into a number of sections, and everyone, including those without any specialized knowledge, will find much to interest them in the various papers. Certain reductions will be made in the fares on railways and boats for the benefit of those who enroll themselves before 1 August.



Messrs Methuen are issuing a series of County Archaeologies and the first volumes, on Middlesex, Berkshire and Kent, will be ready shortly. Each volume will contain a concise account of the archaeological material, from the Old Stone Age to the Norman Conquest, together with a detailed gazetteer containing full references, a list of museums, a bibliography, and a folding map. The General Editor of the series is Mr T. D. Kendrick, of the British Museum. The series should provide a popular and at the same time authoritative set of handbooks and we wish it every success.

* In this section are published such notes about forthcoming events as are received. The special section on Forthcoming Excavations had to be discontinued on account of the difficulty of obtaining the necessary information in time for publication. We regret this as we think that excavators themselves might have profited, especially in cases where an appeal for public support is made.

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One of our readers informs us for the benefit of those interested in the Middle East that a full conspectus of recent work out there is to be found in the *Bulletin of Associates of Fine Arts*, Yale University, February 1930.



The 'Runic inscription' which we commented upon in our last number (pp. 108-9) was also exposed by the *Glasgow Herald*, 12 November 1929. We regret that, not being aware of this at the time, we made no reference to it.



As the result of excavations carried out last April on the camp on Holmbury Hill, Surrey, Mr S. E. Winbolt reports evidence of 'flint-working people, neolithic or later: flint flakes and implements, and (possibly) sling pebbles. Early Iron Age: (possibly) sling pebbles, many beehive querns, gritted red pottery, La Tène III soapy black ware. Roman Age: a dark grey rim and possibly the sling pebbles'. As he reads the evidence, 'the defences of the camp were thrown up, possibly on a neolithic site, in the Early Iron Age, and continued to be inhabited in the Roman era'. (*The Times*, 29 April 1930).



We have received from Miss Liddell a copy of a type-written report on excavations carried out under her direction at North Warnborough, Hants., during March and April of last year. It is beautifully illustrated and reflects the utmost credit on all concerned. The site contains the remains of a Roman villa and we are glad to hear that work has been continued this year with very satisfactory results. Readers of *ANTIQUITY* will recall Miss Liddell's paper in a recent number (September 1929, pp. 283-91) on the ornamentation of prehistoric pottery, and will hope when the present work is complete that she will find a prehistoric site to excavate.



A new Roman fort has been discovered at Newbrough, near Hexham, on Hadrian's Wall. The church stands inside, and part of the churchyard wall is on the wall of the fort. Trial excavations have been made by Mr F.G. Simpson. (*Evening World*, Newcastle on Tyne, 5 and 6 March).

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A similar but less happy discovery has also been announced by the press. An air-photograph published by the *Daily Express* (Scotch edition, 26 March) has the following title:—'Faint traces of the Roman camp at St. Abb's Head, near Berwick, picked out by the eagle eye of the Aerial Camera'. Every word of this is wrong. The traces are not faint but quite plainly marked; it is not a camp, nor if it were would it be likely to be Roman since it is almost mathematically circular; it is not at St. Abb's Head but 5 miles to the southwest; and it was not discovered by either camera or pilot, since it is marked on the Ordnance Map. Actually the circular bank is of quite modern origin, and was probably thrown up round a clump of trees. The photograph was submitted to us soon after it was taken, and the main facts were at once pointed out. It is therefore unlikely that 'Scotland will learn a new and unsuspected story of her national history' from this particular site, though air-photography in the Vale of Strathmore for example might well make an important contribution to knowledge. But the 'eagle eye' must beware of the goose's quill, lest it be put out thereby.



Another gaucherie was published in *The Sphere* (8 March), where 'old mediaeval tiles emblazoned with an embryonic (*sic*) English lion' are described as 'relics of Rome'. The picture shows plainly that they are medieval, but does not throw any light on the true nature of the lion. It should be added that the tiles were found at Great Berkhamsted Castle in Herts., and that the site of this name associated with William the Conqueror's march on London is more likely to be Little Berkhamsted, near Hertford.



It is good news to hear that Sir Philip Sassoon is promoting air-photography of ancient sites in his new command, No. 601 (City of London) Squadron, Auxiliary Air Force, and that the subject is arousing interest. (*Daily News*, 28 February).



Interesting Roman remains have been found in King's Meadow, Carlisle, a second century site, among the finds being a very fine pair of trumpet brooches on a chain. Mr R. G. Collingwood, F.S.A., has prepared a preliminary report. (*The Times*, 15 March, p. 9).

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An interesting suggestion to account for the invention of mud-brick building has been put forward by Mr S. R. K. Glanville, of the British Museum. He says :—

‘ From a very early time it must have struck the Egyptians that the large, irregular blocks of dry Nile mud, which were left as the retreating river’s banks hardened and cracked in the strong sun, could not only be used themselves as a serviceable building material, but could also be imitated by drying lumps of wet mud—regardless of the state of the river. Thus, doubtless, bricks came to be invented. At first they seem to have been used merely as subsidiary to the sandy or rocky walls of scooped-out graves and hut-circles. But, as the shape of the brick became more definite, its possibilities were appreciated, and buildings constructed entirely of sun-dried mud-bricks became the rule—and have remained so ever since. (*Illus. London News*, 8 March).

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The discovery of a very primitive skull at Choukoutien, near Peking, on 2 December 1929 is of prime importance. Prof. G. Elliot Smith, writing to *The Times*, 16 April, speaks of it as ‘ the most impressive, and probably the most important, contribution to our knowledge of early Pleistocene Man that has yet been made ’. The skull was embedded in very hard stone (travertine) but Dr Davidson Black, to whom the find is due, has succeeded in removing it so that ‘ there is revealed for the first time the whole brain-case of an early Pleistocene Man ’. Prof. Elliot Smith points out certain misconceptions which are now cleared up by the evidence which the skull presents. An illustration of the right side of the brain-case is in the same issue of *The Times*, and illustrations of the skull, from several points of view, appeared in *Illus. London News*, 3 May. Illustrated memoirs published by the Geological Society of China are noticed in *The Times*, 5 May, p. 9.

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The excavations of Sir Charles Marston and Professor Garstang at Jericho have aroused considerable interest and we look forward to the publication of their results. (*Daily Telegraph*, 10–11 February).

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Seven skeletons have been found near Boulogne in a tomb formerly buried beneath sand-dunes and recently denuded by the wind. (*Daily Mail*, 17 February).

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An account of recent archaeological work in India by Mr H. Hargreaves, Officiating Director General of Archaeology, has been published in *The Times*, 18 February. We understand that the long-awaited account of Mohenjo-Daro will be issued shortly.



A hoard of gold and inlaid jewelry has been found on a site at Sirkap near Taxila in India. (*The Times*, 25 January).



The mummified remains of a rhinoceros have been found in an ozokerite mine at Starunia in Eastern Galicia. (*Nottingham Guardian*, 16 January; *Ill. London News*, 18 January).



Steps are being taken for the uncovering under expert supervision of certain portions of the Roman town of Isca Dumnoniorum (Exeter), where old buildings are to be cleared away.



St. Isaac's Cathedral, Leningrad, is to be transformed into an anti-religious museum. (*Manchester Guardian Weekly*, 17 January).



An appeal for £5567 has been issued by the officers of the British School of Archaeology in Iraq (Gertrude Bell Memorial). Out of the £20,000 required to endow the School, £6000 (bequeathed by Gertrude Bell herself) is being held in trust by the Trustees of the British Museum, and no less than £8463 has been raised by public subscription. Those who attended the crowded inaugural meeting in the Central Hall at Westminster, presided over by Sir Percy Cox, Chairman of the School, will not be surprised at the success of the appeal. We hope the remaining sum will soon be forthcoming. Cheques should be made payable to the British School of Archaeology in Iraq and sent to the Honorary Secretary (Sir Edgar Bonham-Carter), 17 Radnor Place, London, W.2. We feel sure that the School has a great future.



Detailed particulars have been published of Dr Selim Hassan's discovery of the tomb of Ra-Wer (Fifth Dynasty), who among other titles enjoyed that of High Priest of the Goddesses of Egypt. The tomb was found near the Sphinx and is said to be the largest private tomb of the old kingdom hitherto known. (*Morning Post*, 17 February).

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The fifth of the British Museum's expeditions to British Honduras for the excavation of Maya antiquities is now at work under the direction of Captain E. L. Gruning. The investigation of the site at Pusilha will be continued. (*The Times*, 22 January 1930, p. 17).



An exhibition of the Stone Age skulls discovered by the East African Archaeological Expedition in Kenya under the direction of Mr L. S. B. Leakey was held at the Royal College of Surgeons in January. One skeleton, though of a comparatively late period, is specially interesting. It was found at the lowest part of a great burial mound, covered with parts of other skeletons (presumably human sacrifices at the burial of a chief), fine stone pots and mortars, bowls and tools. Faience and agate beads were also found, and are taken to indicate that the Stone Age people were in touch with traders from the civilizations of the time. (*The Times*, 22 January 1930, p. 9).



An interesting account of the results of the excavations made at the early Christian church of San Sabastian in the Appian Way was communicated to *The Times*, 20 January 1930 (p. 11). The work was begun by the Pontifical Archaeological Commission in 1915 and has been continued, except for suspension during the War, ever since. The foundations show that the building was constructed over some Roman houses dating from the 2nd century A.D.



A relic of Buddha, which is regarded as authentic by the Southern Circle of the Indian Archaeological Survey, is reported in *The Times*, 29 January 1930, p. 13.



A lecture on the excavations at Caistor, next Norwich, by Prof. Donald Atkinson, F.S.A., in which details of the temples found on the site were given, is reported at some length in *The Times*, 22 February, p. 9.



Excavation on the early Trojan site of Thermi has been resumed by the British School at Athens under the direction of Miss Winifred Lamb. (*The Times*, 13 March, p. 12).

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Reports on the excavations at Herculaneum, which have been in progress since May 1927, are printed in *The Times*, 23 January, p. 11, and 25 April, p. 11. The excavators aim to preserve the original construction of the houses, with their special architecture and styles of decoration.



The report of the Associazione Nazionale per Aquileia, giving the first results of the excavations in progress at Aquileia has been published in *The Times*, 1 February, p. 11.



A cemetery dating from the 7th or 8th centuries A.D. has been found near Oerligen, in Canton Zurich. Over 50 tombs were examined, 38 of them having grave goods. (*The Times*, 20 February, p. 13).



Excavations carried out last year by Professor Walter Schmid of Graz, Austria, at S. Margarethen, have established the fact that this village was the ancient Noreia, the capital of the East Alpine kingdom of Noricum. The town is first mentioned in 113 B.C., when the great battle between the Romans on the one hand and the Cimbri and Teutones on the other took place near it. The kings of Noricum were allies of the Suabian king Ariovistus and of Julius Caesar. After the conquest of the country by the Romans in 16 B.C., a new capital, Virunum (Zollfelde near Klagenfurt), was founded, and the name of Noreia was transferred to an adjacent Roman posting-station. Today the memory of it survives only in the legend of a buried city at Horfeld.

The archaeological discoveries consist of houses of one or two rooms each, one being claimed as that of the king. The pottery belongs to the late Celtic period (2nd and 1st centuries B.C.), and to the beginning of the Roman Empire. Close by are the 'gold and silver pits' mentioned by Strabo, and remains of the iron-mines for which Noreia was famous.

Reviews

PAINTING IN ISLAM : a Study of the Place of Pictorial Art in Muslim Culture.
By SIR THOMAS W. ARNOLD. Oxford : Clarendon Press. 1928. pp. xviii, 159,
with 65 plates of which 8 are in colour. 84s.

This book is one of the most successful examples of printing and production that have ever appeared from the Clarendon Press, where meticulous care and artistic taste have long been happily combined. The reproduction of the plates, both in colour and in half-tone, is remarkably good, but the typography of the letterpress pages is equally a delight to the eye. As one comes to study the text of the volume, the first impression is of immense learning, increased by the elaborately accented Arabic names—transliterated according to the latest practice of scholars—and by the plentiful references to original sources in the footnotes. But on further acquaintance, one finds that this apparently ponderous text is very readable, and is illuminated by frequent flashes of real humour, as in the comparisons between Christian and Muslim laxity in matters of religion, or in the amusing legends of King Solomon and the Queen of Sheba. Moreover, it contains a number of charming translations from the Arabic, many of them in blank verse, which are not ascribed to any translator by name and are therefore presumably the work of Sir Thomas Arnold himself.

In his preface he explains that 'the present work makes no claim to be a history of Muslim painters' and that 'the purpose of the book is rather to indicate the place of painting in the Islamic world, both in relation to those theological circles which condemned the practice of it, and to those persons who, disregarding the prohibitions of religion, consulted their own tastes in encouraging it'. The author has restricted himself to these self-appointed limits, but if his work should reach a second edition there must be many students who would welcome the inclusion of a bibliography, and it might be desirable to give dimensions, in inches or centimetres, of the pictures reproduced, as is usually done in the case of larger European paintings. This slight addition could easily be inserted in the 'Notes on the Illustrations'.

There is very little information about technique in the book, such as one finds in M. Saladin's *Manuel d'art musulman* (p. 6, etc.); but on the other hand there is a good deal of new matter relating to individual artists, which is too often lacking in works of this kind. The author's researches have not enabled him to give us a Muslim counterpart of Vasari (though apparently Maqrizi in the fifteenth century did compile such a collection), but throw a good deal of light on the Muslim painters' state of mind, social position, methods of work, and remuneration.

It is well-known that the representation of human figures and all other living forms was condemned in the Islamic world, not, as is commonly supposed, by any specific reference in the Koran, but by passages in those 'Traditions of the Prophet' which have always been considered to be divinely inspired, and carry almost as much weight as the Koran itself. The author suggests that hostility to figure-representation was of Jewish origin, and that Muhammad himself was less intolerant, for did he not allow his child-wife Ā'ishah (aged nine) to continue playing with her dolls in his tent?

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Iconoclasm was a later development. But although the mosque remained, in all countries, unviolated by figure paintings, the prohibition came to be disregarded in the secular life of the court, despite the ceaseless hostility of the theologians. Yet the Koran itself, while it inspired that wonderful ornamental calligraphy which is perhaps the chief glory of Muslim art, was never illustrated with figure-painting. (Oddly enough, the 'Arabian Nights', an ideal subject for artists of the Persian school, seems never to have attracted them). Muhammad himself is represented in no surviving pictures earlier than about 1300, and from the 16th century onwards his face is veiled.

Painting in Islam, up to 1600 or so, was mainly confined to miniatures in manuscripts. There are famous wall-paintings at Qasayr 'Amra (8th century) in Moab, and at Sāmarrā (9th century) in Mesopotamia, but these are exceptional and both were almost certainly executed by Christian artists. Highly erotic paintings on the walls of royal baths were favoured in Persia at a later period, and the learned author contrives to get a good deal of amusement out of describing them. But very few examples of painting of any sort are earlier than the 15th century. Nearly all were miniatures, and the oldest important example of this work, the *Maqāmāt* of Ḥarīrī (13th century), is ascribed to Christian artists. The first people to encourage painters to transgress the Islamic prohibitions were the same powerful rulers of the eastern Muslim states who broke other rules relating to wine, eunuchs, and tomb-building. At first they utilized the services of artists from the large Christian communities still surviving under Muslim rule, and to this source we owe the round haloes used in early pictures. Later, these were superseded by characteristic 'flame-haloes' imported by Chinese artists, together with dragons, and many animal and bird forms from far Cathay. Other elements in early Islamic painting were contributed by the revived Greek school at Harrān in Mesopotamia, the Manichaeans in Khurasan, and the Sasanian remains in Persia. Large numbers of Islamic paintings of later date are preserved in public and private collections, but far more have perished. The paper on which they were executed in delicate colours is easily damaged and destroyed, the great Muslim cities where they were most numerous suffered much by war even after the terrible Mongol invasions of the 13th century, the ladies of the *harīm* (according to the author) decorated them with dirty finger-marks, and iconoclasts burned them in quantities. Most of the surviving examples are Persian and Indian: the western parts of the Muslim world (Spain, North Africa, Egypt, Syria, Turkey) seem to have followed the orthodox prohibition.

The subject-matter of the paintings provides the author with some of his most interesting chapters, and includes several national epics, full of fighting and bloodshed; a quasi-scientific book by Qazwīnī on the 'Marvels of Creation'; and a whole galaxy of Muslim 'prophets' and saints. Among these are several of the chief figures of Christianity: Jesus, Abraham, Joseph and Solomon among them. Some of the legends of Jesus are recorded (though often in a different version) in the New Testament. Others are unknown in the Christian world. The sacrifice of Isaac is the subject of a highly realistic picture (xxxī), while the Queen of Sheba's appearance at Solomon's court brings us almost into the realm of comic opera. Jonah and the whale are only a degree less amusing; and next in this strange gallery comes Alexander the Great, whose adventures on the 'Island of Women' (xxxvii, 6) Sir Thomas Arnold discreetly ignores. Last of all we meet a variety of horned jinns, dervishes, and mystics, to say nothing of *Burāq*, the horse with a woman's head on which Muhammad rode from Mecca to Jerusalem. She gets a whole chapter to herself.

The author makes several important statements in regard to Islamic painting in

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general. He points out in one place (p. 37) that Muhammadan literature contains no attempt 'to work out any independent system of aesthetics or arrive at any appreciation of art for its own sake', a pertinent and penetrating observation. His eighth chapter explains the almost complete absence of any effort at portraiture in painting, and the ninth shows that, with a few exceptions due to alien influence, emotion is never expressed. Thus the painting of Islam, in spite of all the charm of colour and composition and pattern that it displays, lacks the human and spiritual interest that counts for so much in Western art.

MARTIN S. BRIGGS.

THE MOST ANCIENT EAST: THE ORIENTAL PRELUDE TO EUROPEAN PREHISTORY. By PROF. V. GORDON CHILDE. *Kegan Paul*. 1928. pp. 272. 15s.

Prof. Childe's book was produced very quickly, and bears some signs of haste. But it is nevertheless a *tour de force*. It is a very useful book, and will remain so for some little while, till the author brings out a new edition, considering the latest developments of excavation and the latest critical work on the subject. It is a book that might very well be brought up to date from time to time. It gives the general reader, as well as the archaeologist, a competent conspectus of recent archaeological discovery, and will be specially useful to the European archaeologists, who must now more and more acquaint themselves with the results of Oriental discovery. The archaeological world is growing smaller every day, and in all directions spheres of work and thought previously independent are impinging on one another.

Prof. Childe summarizes in turn the Egyptian predynastic age in the light of recent discovery, from the Badarian period to the rise of the dynastic age in Egypt; the two 'prediluvian' cultures of Susa and their connexions; the Sumerian age on which so much fresh light has been thrown by Mr Woolley and Prof. Langdon at Ur and Kish; and the newly-found and most unexpected Indus civilization at Harappa and Mohenjo-Daro; ending with an exordium on the relation of Europe with the East.

I do not intend to recapitulate Prof. Childe's views here: they must be ascertained by reading his book. I find little to quarrel with except on minor issues. We must wait for more light. Naturally there is no finality about any of these things yet. He is very definite on Susa I and II; but I prefer to suspend judgment still on the very interesting question whether it is Susa I or II that is contemporary with al-'Ubaid, and what the relation of the pottery of Jemdet Nasr is to that of al-'Ubaid* or that of Nihavand to Susa. On p. 166 Prof. Childe seems to bring Semites as 'a new ethnic element' into Elam with the second Susian style. Early (pre-Sumerian) Semites in Sumer are not impossible, though I do not think them very probable; but of Semites in Elam we know nothing. They left no linguistic traces of their presence there, at any rate, and Semites without a Semitic language are no longer Semites: properly speaking the word 'Semitic' denotes a language, not a race. We cannot speak of Semitic skulls.

The author is interested in the disputed matter of the early relationships of Sumer with Egypt and the primacy of the one culture over the other. He seems generally to agree with my own contention that Sumer is probably the older: that at any rate of the nearly contemporary cultures of early Ur and First Dynasty Egypt the former is the more highly developed and seems to have communicated certain ideas to Egypt, which, as I

* The latest results from Ur should decide this point.—Ed.

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believe I was the first to point out, appear exotic in Egypt and eventually died out there. One does not thereby ignore the predynastic culture-history of Egypt, as one is accused of doing. I entirely agree with Prof. Elliot Smith that the predynastic Egyptian culture is one with that of dynastic Egypt; the dynastic culture grew up as definitely from the predynastic as the Minoan culture grew out of that of neolithic Crete: there is no break. But I do think, and Prof. Childe is inclined to agree with me, apparently, that early Egypt borrowed some elements of civilization from the culture of Sumer, which c. 3000 B.C. was more highly developed than that of Egypt, and so was probably the older of the two. That is all and this conclusion is reinforced by the fact that one can see nothing in Sumer that was borrowed from Egypt: that is to say the Sumerian culture was probably more fixed and characterized than that of Egypt c. 3000 B.C., and so again was probably the older. Time will show if this is right or not.

Prof. Childe well brings out the vital difference between the geographical situation of the Egyptian and the Mesopotamian river-valleys (p. 125), which had a great influence on their respective histories. Perhaps he over-emphasizes the dissimilarity of Egyptian and Mesopotamian religion (p. 194): there are many real resemblances such as that which existed in some respects, and not only philologically, between Osiris and Ashur (Marduk), and still more such as that between the goddesses Hathor and Ishtar, notably in the latter's Sumerian form Ninkhursag, 'the Mistress of the Mountain'. The likeness of Ninkhursag to Hathor in all respects—as cow-goddess, as mistress of the desert, as protectress of the necropoles, is almost uncanny. I may refer to Mr C. J. Gadd's remarkable chapter on al-'Ubaid on the subject. Shall we look to Syria for a common origin for both?

The most interesting question of all is now for the first time presented to the public in an accessible form: the question of the early Indus civilization. It presents many difficulties. When, in 1913, I first suggested that the Sumerians bore, to judge from their sculpture, a physical resemblance to Indian types, chiefly of the Dekkan, and so probably Dravidian, I never expected that an early civilization would be unearthed on the banks of the Indus which shows unequivocal evidence of connexion with Sumer. Yet a trade-connexion is conclusively proved by the discovery at Ur and elsewhere in Babylonia of signets of the same type as those found in India and with the same foreign writing as those from India: nay more, by the find at Ur of an Indian seal, with an Indian bull-figure on it, but with a cuneiform inscription instead of an Indian one! And there are resemblances in other things: the figure of a bearded man from Mohenjo Daro is very Sumerian in character, and the trefoil marks on his garment are precisely the same as the markings of ox-hides in Egyptian and Cretan representations. But the pottery seems different; and is claimed to be wheel-made at an epoch older than that of Sumer. The chariot too is claimed to be older in India than in Sumer. Will some Indian archaeologist claim that all culture came, not as Prof. Elliot Smith thinks, from Egypt to Sumer and India, but from India to Sumer and eventually Egypt? *Bande Mataram!* Prof. Smith must indeed look to Egypt's laurels, if this goes on!

In fig. 8 Prof. Childe presents a very interesting early Indian wall-painting in which a rhinoceros-hunter is shown using triple-barbed spears of a type that is known from India in copper. There is an incomplete example in the British Museum prehistoric collections, and a fine one is published in *Proc. Soc. Ant. Scot.*, VIII, 293, x. 691, p. 72. Oddly enough, it was found on the banks of the Tweed near Norham, where it must have been thrown away by some returned traveller from the East or some person to whom he had given it. It is referred to the beginnings of the age of metal in India. But the

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finest example known is that in the possession of Captain E. G. Spencer Churchill at Northwick Park: this has, too, a magnificent patina.

Prof. Childe has given us the pith of the new finds in his chapter on the Indus Civilization, which all may read and perpend. And we may go on perpending for some years yet. The time for the death of theories and the birth of facts is not yet in this matter. But it is all extraordinarily interesting. One thing to be said (with bated breath, perhaps) is that we hope the excavators will soon give us a temporary rest from these amazing discoveries. We want a sabbatical year or two in which to digest them. As it is we are too busy keeping up to date to be able to sit down and consider them at leisure.

As to details, I do not see that lapis-lazuli is 'far-away' in Seistan (p. 147): it is found I believe almost exclusively near there, in Badakshan. Ape-statuettes (*ibid.*) in Babylonia may mean an Indian as much as an Egyptian connexion. Were lip and nose-plugs found at al-'Ubaid (p. 139)? I know what Prof. Childe is referring to: but may some not equally well be ear-plugs, and others (the pegs) be merely just pegs, and not intended for human decoration at all? I continue to question (p. 191) the deliberate partial cremation of Sumerian bodies, though I am aware that Woolley considers he has some further reason for supporting it. In house burials there is always the possibility of burials being burnt in a general conflagration of such a city as Ur, and in deep graves there is the curious phenomenon of slow chemical carbonization to be taken into consideration, which is illustrated often in Egyptian mummies, most notably in that of Tutankhamen. There is no trace of even partial cremation in cuneiform literature. But, neither, on the other hand, is there any trace in it of the undoubted massacres of slaves and soldiers that took place at Ur.

There are several misprints: e.g., 'brousing' (p. 24), 'aberrent' (p. 28), 'apoge' (p. 123), 'Erivain' (p. 136), 'theriomorphis' (p. 153), 'heirarchy' (p. 170), 'Shub-ad' for either Sub-ad or Shub-ad (p. 193). And why use the German form 'Jenisei' for the Yenisei (p. 40)?

H. R. HALL.

REPORTS OF THE RESEARCH COMMITTEE OF THE SOCIETY OF ANTIQUARIES OF LONDON. No. VII. Second Report on the Excavation of the Roman Fort at Richborough, Kent. By J. P. BUSHE-FOX, F.S.A. *Oxford University Press*. 1928. pp. 231 with 47 plates. 7s 6d.

THE ROMAN FORT AT OLD KILPATRICK. By S. N. MILLER, M.A. Jackson Wylie & Co. 1928. pp. xvii, 63; with 27 plates and 3 figs. 12s 6d.

Excavations undertaken by the Research Committee of the Society of Antiquaries have a way of producing masses of invaluable material for students of Romano-British archaeology, and the present report (which carries the record of the excavations at Richborough up to the end of 1925) is perhaps even more noteworthy in that respect than its predecessors. Much has happened at Richborough, so that it is not necessary to summarize here the results included in this report, but particular attention may be directed to the coin-list (which records as many as 17,000 coins), and to the sections on small objects and on pottery, and to the plans and sections, which are the best we have seen in any excavation report. How the report can be published at the price we do not know; no student of archaeology can afford to be without it, and it is within the reach of everyone. No country has yet produced a report that can compare for accuracy, clearness, and *format*, with this and its predecessors, and British archaeology owes a great debt to Mr Bushe-Fox and his colleagues for their work.

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Mr Miller, at Old Kilpatrick, was faced with a far more troublesome task than the excavators of Richborough; there, excavation proceeds steadily and surely, supervised by a large staff of specialists. Mr Miller was compelled, in two short seasons, to rescue what he could of the Roman fort, before the builders destroyed it; and the work of supervision and reporting on the finds (lamentably few as they were) was left almost entirely to him. In spite of the scarcity of structural remains, and of pottery and coins, he has succeeded in securing a very complete picture. First, an Agricolaean *praesidium* (though perhaps the pottery evidence that he cites is hardly sufficient to warrant the supposition that that fort was occupied for more than a season); and then the Antonine fort, founded before the new Wall was begun, and associated with a port through which the materials needed for that work passed; together with evidence for the same three periods in the life of the fort as had previously been noticed at other sites in Scotland. As yet, no attempt seems to have been made to find an explanation of the second reconstruction, except as 'an incident in the final abandonment'. It may be worth suggesting, in view of the latest results at Birdoswald, that it was the Scottish Wall that was restored by Ulpius Marcellus, and that the complete abandonment did not occur before Clodius Albinus crossed to Gaul for the final clash with Severus.

The report is well printed, but the line drawings are not as good as they might be.

These two reports are excellent examples of two of the classes of excavation that are most needed now—the thorough excavation of a site important for the whole history of Roman Britain, and the investigation of a site threatened by the builder. Each might be taken as a model of its kind by excavators faced with similar work, and each is an indispensable work of reference for students of Romano-British archaeology.

E. B. BIRLEY.

NORTHERN NEGD: THE MANNERS AND CUSTOMS OF THE RWALA BEDOUINS. By ALOIS MUSIL. *American Geographical Society, Oriental Explorations and Studies*, nos. 5 and 6. New York, 1928. pp. 368, with 67 illustrations and map. 7 dollars.

These further instalments of the monumental work of Musil, for the publication of which we have to thank the munificence of Mr Charles R. Crane, deal more exclusively than did their predecessors with the modern aspects of the Arabian desert, and appeal primarily to the geographer and the ethnologist. Very few ancient sites were encountered in the course of the journey which Musil describes with his usual minuteness of detail in the first part of the volume on Northern Negd; to the archaeologist the appendices will prove more interesting than the text proper. The history of the houses of Eben Rasid and Eben Sa'ud are recorded at length, and the author has shown an industry in amassing information which is only equalled by the clearness with which he sets it in order. Recent as most of the events are, they illustrate desert conditions which are of all time, and if in 1824 an Eben Sa'ud was at war with a Fejsal eben Dawis, sheikh of the Mtejr, and today Eben Sa'ud is in the field against the same tribe under another Fejsal eben Dawis, we can be sure that the literal repetition of events is no unique thing, but that the modern history of Arabia may well be called in to fill up the gaps in the scanty records of its past. Particularly interesting are Musil's views on the alleged desiccation of Arabia in historical times as being the reason for the migration or expansion of warlike tribes. To this theory Musil is strongly opposed, holding that the changes in the fertility of the country have been always due to human destruction or neglect and to the use or abandonment of trade routes. At the present time Arabia is as well watered and

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as capable of maintaining a large population as it has been at any period in history. His opinion is certainly supported by facts in Palestine and in the Sinaitic desert south of Palestine. In the latter area town ruins speak of flourishing conditions in the fifth century A.D., whereas today only a few impoverished Bedouin wander over a barren waste; but everything in the ruins, the use of stone rafters instead of timber, the existence under every house of a stone cistern which took all the drainage of roof and court, the elaborate system of dams and catchments and rock-cut cisterns all over the country, prove that the rainfall was no greater then than now but was scientifically utilized. The Moslem conquest destroyed the towns, the stoppage of the silk trade along the Akaba route took away their *raison d'être*, and Sinai reverted to desert. That the same thing on a larger scale was true of Arabia is most probable. Musil cannot accept, for geographical reasons, the identification of the Tejma oasis with the Tema where Nabonidus established the seat of his Babylonian empire, and here too the opinion of a first-hand observer must carry weight. On p. 226 al-Mkajjer is wrongly given instead of Warka as the modern name of Erech; the correct identification with Ur occurs on p. 307.

The second volume deals with all aspects of the life of the Bedouin tribesman, the descriptions being throughout illustrated by poems which Musil took down in writing from the singers and translates and annotates most fully. Nothing so detailed and systematic has been attempted by any other writer on this country, and though the book is not easy reading it is a veritable storehouse of information, nor is it likely ever to be supplanted.

C. L. WOOLLEY.

ANNUAL REPORT OF THE ARCHAEOLOGICAL SURVEY OF INDIA, 1925-6.

Edited by J. F. BLAKISTON. Calcutta: Government of India Central Publication Branch. 1928. pp. xv, 306, with 79 plates. 53s.

The pleasing theory that all things bright and beautiful, especially ourselves, are of 'Aryan origin' has been rudely shaken since Schliemann began to clear the rubbish, material and academic, that had accumulated over the site of Troy. Sir Arthur Evans' discoveries in Crete knocked the bottom out of the old controversy whether Celt or Teuton is true heir to the 'Aryan' halo, and now Sir John Marshall and his officers bid fair to prove that Indian culture is, after all, of Indian origin. Interest in ancient India accordingly centres at present in India's challenge to nordic theories, the so-called 'Indo-Sumerian' culture (pp. 72-98), associated as it is with silver, tigers and other things, unknown apparently to Rigvedic Aryans.

In the season under report Sir John Marshall concentrated his efforts on Mohenjodaro; excavation proceeded in five different areas, while Mr Hargreaves was deputed to dig the Sohr mound, near Nal in Baluchistan, in the hope of discovering early culture contacts between Sumer and the Indus valley. It so happens, however, that the results of these—and later—excavations have already been summarized by Sir John in *The Times* and *Illustrated London News* in 1926 and 1928, and this Report does not add much to the evidence and inferences so published. (See *ANTIQUITY*, 1928, II, 83, 84).

In his Report for 1923-4 Sir John deprecated the 'wild writing' that greeted his first announcement of these discoveries in the London press, and declined to be jostled into premature publication. His caution was justified, for the evidence is not so easily unearthed and appraised as some sanguine spirits anticipated. Already the term 'Indo-Sumerian' has to be dropped; it presumed too much, and 'Indus' culture is safer; and the Nal excavations,¹ which suggest affinities with Susa and Musyan, reveal no certain

¹ Since published in Memoir no. 35 of the Archaeological Survey, 1929.

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connexion with the Indus sites. Though 'five distinct strata' have been exposed at Mohenjo-Daro, they cannot, so far as this Report goes, be culturally differentiated. In fact, the canons by which archaeologists in other fields build up their chronology are in India so far lacking. The form, fabric, decoration and technique of Indian pottery and beads has not yet been exhaustively examined and classified. The significance of associated fauna and flora, of breeds of domesticated animals and plants particularly, deserves more attention than it receives. A few analyses of minerals and metal artifacts are recorded, but their provenance is not established; while copper celts, which are said to link the Indus culture with the famous finds at Gungeria in Central India, are not recognizably figured (pl. xxxviii, f.). Even the technique of building construction, which yielded such useful results in Taxila, seems to fail in Mohenjo-Daro. No doubt these matters will be clarified in due course when the promised Memoir is issued; the volume under review is, after all, an official report and not a monograph.

Two other sites of interest were dug during the year, viz. (1) Paharpur in Bengal, which yielded remarkable evidence of the eastward extension of Gupta art, and (2) the famous Buddhist monastery of Nalanda in Bihar. An account of these also has appeared in the *Illustrated London News* (1928). The only other points of note in the Report are a brief summary by Sir Aurel Stein of his successful venture on the track of Alexander, a few useful notes on iconography and a cursory account of some very interesting inscriptions.

India is well ahead of the rest of the Empire in recognizing the national importance of national monuments. The Government have been generous, the staff able. These annual reports are superbly printed; the illustrations are beyond all praise. To criticize such munificence seems ungracious, but it fails to satisfy because it attempts too much.

Of the 306 pages of the Report roughly one-third is devoted to archaeology, two-thirds to departmental administration. There is no index, no map. The archaeological sections contain many appetizing morsels which require to be served separately as memoirs to be properly digested. From the administrative sections also some facts may be gleaned the scientific value of which would be clearer if they were scientifically arranged. But the embodiment of 93 pages of accounts in a volume *de luxe* is an outrage. Presumably the Editor is the victim of conflicting forces, the demands of science and the prescriptions of a secretariat. None will deny the importance of annual reports, careful finance, and, above all, conservation. But the present system is wasteful; two-thirds of the letter press are of no permanent value whatsoever; of the rest much will be reprinted in the memoirs; and meanwhile the Report itself is delayed by its own complexities and the publication of material of urgent scientific importance is held up. Till 1915-16 the administrative and scientific aspects of the Survey were dealt with in separate publications. A reversion to that system should free the funds and brains of the Department for the work that really counts.

Meantime the educative value of the Survey suffers. Archaeology needs the support of public opinion, and the public, both in India and in England, is receptive. Publicity is not to be despised; small hand-books, such as Sir John Marshall's guides to Taxila and Sanchi (1918) or Mr Longhurst's *Hampi Ruins* (1917)² serve a very useful purpose, and Sir John's timely communications to the London press are by no means the smallest of the many services he has rendered to the cause of Indian Archaeology. F. J. RICHARDS.

² The *Guide to Sanchi*, the Report says, has been sold out, and only Urdu copies are available. Of *Hampi Ruins* a second edition is announced.

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MACEDONIAN IMPERIALISM AND THE HELLENIZATION OF THE EAST.

By PIERRE JOUGUET. *Kegan Paul, Ltd.* 1928. pp. 440, 7 plates, 4 maps and plan.
211.

In this valuable addition to the 'History of Civilization' series, M. Jouguet deals with the complex world that arose as the result of Alexander's conquests. 'Hellenism conquered the East by means of the armies of Macedonia and its own institutions. It is the history of that twofold conquest that this volume has attempted to trace'. Thus in his conclusion the author summarizes his aims, and adds, with a consciousness of the poverty of his sources and the difficulty of the task, that 'it was hardly possible to succeed'. Yet if complete success in such an enterprise is not to be looked for in the present state of knowledge, the book gives an admirable survey of what is known, and of many problems that await further evidence for their solution, such as the exact part played by the 'politeumata' in Egypt.

The book is divided into four parts. The first deals with Alexander's conquests and the organization of his empire as far as it can be determined in the incomplete state in which it was left at his death. In part II the dismemberment of the empire is described and the succeeding conquests, until in 281 B.C. the assassination of Seleucos removes the last of the generals of Alexander, and the Eastern Mediterranean settles down under the three powers which are to dominate it until Rome becomes supreme. The third part is concerned with the rivalry of these powers and traces the fortunes of the Lagid and Seleucid empires down to the beginning of the 2nd century B.C., when the second Macedonian war and the fall of the Seleucid power mark the decisive intervention of Rome in the East and the beginning of a new epoch. M. Jouguet has some penetrating remarks on the causes of the rivalry between the Hellenistic monarchies and discusses their need for Greek settlers in their policy of Hellenization, the advantages of the control of the coasts and islands of the Aegean, and their general economic situation. 'The Hellenic Mediterranean and the Eastern world, which had never been separate, now formed a more complete unity, since the same civilization covered the whole, if unequally. This intellectual and moral unity was reinforced by economic ties. Between Asia and Eastern Europe trade had always been considerable, and this was what had, for example, made the prosperity of the old Greek cities of Asia Minor. It now enjoyed greater facilities than ever. Warlike expeditions and geographical exploration had brought a better knowledge of the great trade-routes which crossed the heart of the Asiatic world to the Far East, they had opened new routes, and, above all, they had revived traffic on roads which were forgotten or partially abandoned . . . But the Empire was divided up, and the rival kingdoms, quarrelling for the leadership, were naturally inclined to quarrel for the control of the trade routes, and especially for the ports at which they ended on Hellenic waters, for these were a great source of wealth, and wealth was necessary for the conquest of power'.

The fourth and concluding section of the book deals more specifically with the theme of the Hellenization of the East and the organization of Hellenism in the Graeco-Oriental kingdoms. In this, perhaps the most interesting and important part of the book, M. Jouguet devotes the greater part of his space to Egypt 'because', as he remarks, 'the historian is dependent on his sources and Egypt is the country which has preserved the most evidence, and the most precise, about its past'. The papyrus finds have given to the historian a mass of varied documents which afford glimpses of the inside life of this country, and throw light on matters which can only be conjectured in the case of the other Hellenistic monarchies.

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In the light of these documents M. Jouguet considers the organization of power both central and local, the position of the god-king, the administration of justice and the means by which the Ptolemies sought to spread Hellenism in a country whose manners and institutions were so alien to the Greek way of life. By the spread of Greek education in palaestrae and gymnasiums Greek traditions were fostered, and 'the idea of Isocrates was applied that it is not blood but education that makes the Hellene'. Similar aims probably influenced the treatment of agriculture and the allotment of land. 'The policy of the Lagids', says M. Jouguet, 'aimed at creating between the fellah in the country and the aristocracy of the cities and court, a mixed population, which might be penetrated with oriental ideas, but, in the higher classes, was dominated by Hellenic culture'. M. Jouguet's book opens with the spectacular achievements of Alexander and closes as the power of Rome becomes established in the East. To the student of the Roman Empire and of Greek history alike this period is of great interest and importance. Rome succeeds to many of the problems which faced the Hellenistic monarchs, and is in turn influenced not only in all probability by their methods of organization but by the welter of ideals and ideas, Hellenic and Oriental, with which the Eastern world was already saturated. M. Jouguet is to be congratulated upon a volume which contains not only a lucid narrative of events but much that is stimulating and suggestive. Following the usual excellent practice of this series the book contains a bibliography of some 240 volumes to which reference is made throughout the text. There is also an index. G. F. FORSEY.

SIX CAUSERIES FAITES À RADIO-BELGIQUE. *Par* JEAN CAPART, *Conservateur en Chef des Musées royaux du Cinquantenaire*. 1926.

BELGIQUE ANCIENNE : guide du visiteur. *Par* LE BARON DE LOË, *Conservateur*.

GUIDE SOMMAIRE DES VISITEURS DES MUSÉES ROYAUX DU CINQUANTENAIRE. [*Par* Mlle. YVONNE DUPONT]. 1928.

GUIDE DU VISITEUR : Egypte. *Edition de la Fondation Reine Elisabeth*. 1928.

These four little booklets arrived for review at an opportune moment when the reviewer was about to visit Brussels for the express purpose of seeing the Cinquantenaire Museums, where the national archaeological collections are housed. Both the guides and the visit revealed a spirit of enthusiasm which is not always associated with state enterprises. Criticism is disarmed by this fact, for such shortcomings as are to be observed are mainly due to factors beyond the control of the conservators. That so much has been achieved during the past quarter of a century is evidence of the triumph of mind over immense material difficulties.

The collections consist of prehistoric Belgian antiquities of Belgo-Roman remains (the latter surprisingly rich), and of classical and ancient Egyptian relics. The excavations of Professor Sir Flinders Petrie are well represented. The arrangement of the Belgian section is excellent; one begins with the palaeolithic period and proceeds, through a rich Omalian neolithic, to the bronze, iron and later periods. There are models of Roman villas, and some wonderful objects from the Belgo-Roman burial-mounds, many of which are found (as in England) beside Roman roads. A composite photograph of an old map of 1693 (published in the *Histoire militaire des Flandres*, by the Chevalier de Baurain) is

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exhibited, showing a whole chain of them along the Chaussée Brunehaut from Bayay to Tongres. On the wall is a series of large maps showing the distribution of remains of the palaeolithic, neolithic, bronze, iron, Belgo-Roman and Frankish periods. The choice of symbols is not ideal, but the chief habitation-areas in each period are well brought out, and that is after all the main thing.

The principal neolithic sites are of course the flint-mines of Spiennes; there is also a collection of objects from the Omalian village of Vaux-et-Borset near Liège. The region of Hesbaye was the most northwesterly point attained by the Danubian neolithic 'bandkeramik' culture; it is best studied however in the Liège Museum (closed on Saturdays), which houses the very rich finds from the excavations of MM. de Puydt, Hamal Nandrin and Jean Servais. One does not usually think of Belgium as a dolmen-country, but there are several in the hill-country of the southeast; one (of which a model is exhibited) at Weris has a well cut door-like entrance in a huge slab at the end.

The late Bronze Age cemetery of La Quenique contains a large number of globular cinerary urns with Lausitz connexions eastwards and perhaps British (Devrim) connexions in the west. The bronze objects associated consist of bronze razors, pins and swords.

A Hallstatt burial at Eygenbilsen (Limbourg) contained a bronze ewer of Italian origin (see *ANTIQUITY*, II, 428 and pp. 130-2 of the present volume), a cordoned bronze situla and a fine golden diadem.

There is a model of the hill-fort of Hastodon at Saint Servais (province of Namur). There are several other hill-forts in Belgium, some of which are said to be vitrified (Baron de Loë, p. 32). We tried to locate the remains found in them but were unable to do so. It is unfortunate that the arrangement (and apparently to some extent also the numbering) of the cases does not correspond with that of Baron de Loë's guide, of which a new edition is required.

The Iron Age potteries recently discovered at La Panne fill a fine case. Many of the pots are perfect and the whole is a most valuable collection. Certain objects (like our 'hand-bricks') are explained as supports for use during firing. An Iron Age lake-village at Neckerspoel (the name is suggestive) near Malines yielded a few kinds—enough to show that it was inhabited during the La Tène period.

M. Capart's radio-talks are an admirable exposition of the functions of a national museum, written in popular language and eminently readable. In his first talk he asked listeners to send him a postcard saying why they had never been to see the museum, their national heritage. The replies are instructive; twenty-three only were received. (Four who lived at Brussels had never heard of the museum!) A casual encounter in a tram was responsible for the surprising opinion that museums were yet another device for finding well-paid jobs for *fainçants*!—which shows how little one-half of the world, or more, knows how the other half lives.

Full information about the times of opening, etc., is given on p. 8 of the Summary Guide. The Museum is closed on Fridays. In passing we may ask why an international agreement cannot be made with regard to the closing-days of museums. Here is a small but important task for some international body—to attempt to secure uniformity of opening and closing times; or at any rate to compile and publish a handbook of information. Why, for example, does not the Intellectual Cooperation Committee of the League of Nations take cognizance of archaeology, one of the most lively and most international branches of science? Why are all international rapprochements left to overworked individuals?

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MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA. No. 41.
Survival of the Prehistoric Civilisation of the Indus Valley. By RAMPRASAD
CHANDA. *Government of India*, 1929. pp. 40, and 2 plates, index. Rupees 1-2
or 2s.

It is difficult to understand why this volume was published by the Archaeological Survey of India, for it consists almost entirely of extracts from Sanskrit literary sources which have no bearing whatsoever on archaeology. Of course Mohenjo-Daro and Harappa provide the excuse; they are in the Indus Valley and so, at one time, were the peoples of the Vedas. Unfortunately, it is all a little vague. Until the long expected Indus Valley excavations report is on the table, it must be confessed that we know extremely little about Mohenjo-Daro and Harappa. It requires a very superficial acquaintance with Sanskrit literary history to realize that the earlier and later Vedic 'periods', upon which Vedic chronology hangs, are comparative terms, and little else. Dates, of course, are frequently given—in good round numbers. Since, however, there are no dated sources at all, the chronology of Vedic literature can only be compared to a very indigestible sandwich—a great deal of opinion crammed between a lower limit provided by the so-called Indo-Iranian schism, and a higher limit provided by the rise of the Buddhist and Jain traditions. It is evident that the mass of opinion here set out is based upon some sort of estimation or guess-work as to the probable rate of development of the language. How it is done is a mystery, for it is an acknowledged fact that languages have a way of lying dormant for long periods and suddenly bursting into a new phase; modern English and modern Persian are excellent examples. Such galvanic activity must have causes—and external, concrete causes at that,—causes which are truly cultural and which, unless represented culturally, must remain unknown. It is evident in such cases that the literary student can only state his opinions and wait for the archaeologist to arrive at the facts. In this volume the process is reversed. Text after text is thrown up on a number of subjects, such as human sacrifice and *Sati*, and, at the end of it all, we are told that the well-known Mohenjo-Daro stone heads prove the practice of *Yoga* in the Indian chalcolithic period. The evidence is the squint in the eye.

The Archaeological Survey is a Government Department and doubtless has its own troubles. But why should either the Survey or the Government of India insist on publishing this kind of pointless work when there is so much unpublished that scholars would universally welcome? The Survey is a national institution, but it is also a scientific institution. Strong co-operation is waiting for it, whatever its difficulties are—if only it will co-operate.

K. DE B. CODRINGTON.

PAPERS ON THE ETHNOLOGY AND ARCHAEOLOGY OF THE MALAY
PENINSULA. By IVOR H. N. EVANS, M.A. *Cambridge University Press*. 1927.
pp. viii, 164 with 43 plates. 15s.

This is a collection of papers previously published in local periodicals of Malaysia. They do not belong to a definite plan and are therefore rather scrappy. This applies particularly to the articles on the Pagan races. They appear quite untouched by the example of Rivers, whose great merit it is to have always insisted on the 'concrete method'—that is the exhaustive study of single communities as the preliminary to a general survey of allied ones. We should have preferred such an intensive study of one pigmy community; but we are given instead mere fragments hastily collected through an interpreter. Such scraps were useful in earlier days as a starting point,

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but they have been rendered very inadequate since intensive study has become more general. It is impossible to give a useful account of 'the religion and customs' of the Negritos of peninsular Siam in two pages (12-14) as the author attempts. The author's bent is not really in that direction, but in that of technology. The series on Malay and other technology is made up of detailed and careful descriptions of objects and technique. It is interesting to note that the Malays, like the Sinhalese, first shape their pottery on the wheel, then beat it out with a mallet. It is with a grooved mallet that the patterns described on p. 123 and illustrated on plate XXIX are made, 'not by the application of fairly fine cord'. This type is common in Ceylon about the 10th to 12th century, and probably long before that. I fell into the same error as the author until I saw the method actually in use and had larger specimens to examine.

It is evident that Malay archaeology suffers, like that of India and Indo-China generally, from the neglect of pottery. Hence the fact frequently recorded that the miscalled 'corded pottery' occurs with stone implements (pp. 141, 144, 151) does not help us at all. Yet it is crucial. The Sarasins also found pottery with quartz implements in Ceylon, but were so persuaded that they did not belong together, that they did not, so far as I am aware, trouble to describe the pottery. The author's finds in Malaysia leave no doubt that they do belong together, and in Malaysia it is a type of pottery that was common at a fairly late period in Ceylon.

The author is handicapped in his archaeology by his lack of familiarity with Buddhist and Hindu archaeology. The fact is that he has far too big a task set him. It is impossible for one man to do both the anthropology of Malaysia and at the same time run a museum; and all this without, apparently, an adequate staff of draughtsmen—for to such a lack we must attribute the insufficiency of maps and drawings. For instance a verbal description of pots on p. 71 is a very inadequate substitute for drawings. It is to be hoped that the Government of Malaysia will soon come to realize that if the work is to be done at all it must be done properly, and that can only be done by portioning it out among an adequate number of workers with their special qualifications.

A. M. HOCART.

LES ANTIQUITÉS BOUDDHIQUES DE BĀMIYĀN. *Par* A. GODARD, Y. GODARD
et J. HACKIN. Tome II. *Van Oest*. 1928. *Price not stated*.

This second volume has preceded the first, which will deal with the origins and itinerary of the expedition. Bāmiyān is a town in the Hindu-Kush, north of the main range, about 90 miles from Kabul, the capital of Afghanistan. It lay on one of the most important roads that in antiquity connected the Oxus watershed with the Indus, and was, from the early centuries of the Christian era until the Muslim conquest in the 8th century, an important centre of Buddhism. A Buddhist temple with its idols intact apparently stood here as late as 871, when these idols were brought to Baghdad. The existence of two colossal images, cut out of the face of the cliff, had been known to European writers since the 17th century. But it was not till the visit to Bāmiyān of M. Alfred Foucher in 1922 that they were studied by a specialist in Indian archaeology. The preliminary observations of M. Foucher were completed by M. Hackin and his colleagues in November 1924. The older of the two giant Buddha-images (known as the 35-metre image) seems to date from about the 2nd century A.D. In connexion with these figures are a number of cave-shrines, some of which contain remains of paintings. The caves thus decorated date from the third to the beginning of the fifth centuries,

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and are thus the most ancient Buddhist wall-paintings, apart from caves 9 and 10 at Ajanta and the paintings from Miran in Central Asia. The costumes of the donors who appear in these paintings (particularly a coat with broad lapel on right side only) and many other details connect them with the Iranian rather than the Indian world. The actual cult figures are, however, prevalently Indian. What M. Foucher calls the Chinese element may, in fact, represent the Indo-Scythian (Kushān) contribution to the style. For the 'ancient king' who built (according to the Chinese 7th century traveller Hsüantsang) the first monastery at Bāmiyān was probably Kanishka, the great Kushān monarch; and it was from the same Indo-Scythians (called by them 'yüeh-chih') that the Chinese got their first lessons in Buddhism.

The latter part of the book deals with the remains of a vast composition painted on a wall of rock at Dokhtar-i-Noshirwan, near Rui, thought to have been executed for one of the Sassanian governors of Bactria about the 6th century. Only fragments are still decipherable; but it is plain that here the painters, who may themselves have been Buddhists, carried out a scheme of decoration largely consisting of traditional Iranian motifs, though with some use of their own repertory.

There is a valuable appendix on 'Bāmiyān dans les textes chinois', by M. Paul Pelliot.

ARTHUR WALEY.

SEGOBRIGA. Von Prof. Dr ADOLF SCHULTEN. *Sonderabdruck aus d. Deutsche Zeitung für Spanien*, 25 March and 10 April, 1929. Barcelona. pp. 20.

The purpose of this article is less to praise the very excellent article under review, than to draw attention to the Corpus of such topographical studies, all from Dr Schulten's pen, which has grown up since 1919. During the last decade, the *Deutsche Zeitung für Spanien* has published year by year encyclopaedic studies of ancient Roman, Greek and Iberian sites in Spain; all are worth reading, and rank in value with Dr Ashby's similar studies in Italy, as first-class accounts of South European sites that lie off the beaten track, and are little known: accurate, concise, summaries of the archaeological material. Here is a list, compiled with the aid of Dr G. F. Hill.

1919-20: Ibiza, 10 and 25 Aug., 1920; Tarragona, 10, 25 Jul., 10 Aug. 1922; Meca, Merida, 1922; Die älteste Beschreibung der Pyrenäen-Halbinsel, 25 April, 10 May, 1922; Tartessos, 25 Dec., 10, 25 Jan. 1922-3; Coto de Doñana, 25 May, 10 June, 1923; Gades, 25 Jul. 10, 25 Aug. 1923; Die Schlacht bei Munda, 25 Oct., 10 Nov. 1923; Avila, 10, 25 Feb. 1924; Mainake, 10 Jul. 1924; Cariño, 25 May, 1925; Cauca, 10 Apr. 1927; Cáceres 10 Apr. 1928; Segobriga, see above.

I. A. RICHMOND.

JAHRBUCH DES PROVINZIAL MUSEUMS ZU HANNOVER. *Neue Folge*, band 3. Hannover, 1928. 172 pages, 36 plates.

This well got-up publication—it is printed in Latin characters—reports fully on the activities of the year 1927, the 75th of the museum. It begins with an obituary notice of Dr Adolf Fritze, a well known German zoologist and former director of the Hanover Zoological Gardens, and an active member of the museum staff. The Director of the Museum in general, and of the prehistoric and ethnographic section in particular, Dr K. H. Jacob Friesen, is probably the best known to the world outside Germany.

The *Jahrbuch* gives a short account of the earlier days of the museum, of the dispersal of private collections in the 18th century, and the adventures that happened to some

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of the present exhibits. There were for instance some Roman busts which George I of England acquired on the death of Louis XIV, through his ambassador in Paris. The French retrieved these busts in course of the Napoleonic wars, but in 1813 fourteen of the 25 were brought back to Hanover. The authenticity of these busts as real antiques seems somewhat doubtful, but the tale of their adventures is worth telling.

The *Jahrbuch* describes the present arrangement of the Provinzial Museum, of which the prehistoric section should interest us as containing much that concerns the ancestors we have in common with the folk of Hanover and the country between that city and the sea. The compilers of the *Jahrbuch* have devoted two-thirds of the space at their disposal to a reprint of Mushard's *Palaeogentilismus Bremensis*, a work which shows the methods of prehistorians of nearly 200 years ago.

Martin Mushard was born at Bremen in 1699 and spent his long life as pastor in the lands between the mouths of the Weser and Elbe. Unhappily nothing is known of the many finds he describes; they seem to have got into private hands. But his work, republished in the *Jahrbuch*, stands as a monument to one who was in his day the most prominent of North German prehistorians. Indeed the loss of Mushard's many finds is qualified by the excellent drawings with which he illustrated his catalogue, and the *Jahrbuch* reproduces these with great care and clearness. The text of Mushard's work is given almost literally in archaic German with a northern idiom, and this should prove of interest to philologists. For medical men a Doctor Major Rhodius, who collaborated with Mushard, prescribes the 'green rust' scraped from metal finds, as 'Präsentissimum remedium' for intermittent fever. The reading of Mushard's work thus reproduced in the *Jahrbuch*, arouses a desire to revisit that land of shifting sands, tidal rivers and wide heaths which some of his remote ancestors exchanged for much the same surroundings in our country.

B. GRANVILLE BAKER.

GUIDE ARCHÉOLOGIQUE AUX TEMPLES D'ANGKOR. Par HENRI MARCHAL.
Paris and Brussels: Van Oest, 1928. pp. vii, 217, with 16 plates and map. Price not indicated.

It is unfortunate that this excellent handbook was written just at the moment when M. Philippe Stern was putting forward a theory which entirely upsets the hitherto accepted chronology of Khmer art. The old chronology has now been abandoned even by M. Parmentier, who was to a large extent its author. A summary of the new views will be found in Grousset's *Histoire de l'Asie*.

The speculative mind will certainly be stimulated by this volume to examine once more the problem raised by the extraordinary resemblance between the Angkor architecture and that of certain Central American ruins. Imbelloni, in his *La Esfinge Indiana** (1926), plate IV, has already correlated the Phimeanakas (9th century, the central shrine of the original Angkor Thom group) with the stepped pyramid at Papantla, in Mexico. The latter is supposed to date from the 11th century. It is hardly credible that such a resemblance is fortuitous; but so long as chronology, on both sides of the Pacific, remains in its present state of fluctuation, explanatory theories are hardly worth forming.

Angkor Vat, the later temple, just outside the precincts of the royal town, is now placed c. 1112-1152. Comparatively recent research has shown that Khmer art did, as was formerly supposed, suffer a sudden extinction after the 12th century, for the temple of Banteai Srei, 14 miles from Angkor, dates from the 14th.

A. WALEY.

* Reviewed in *ANTIQUITY*, I, 241-3.

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THE HISTORY OF THE DEVIL: the Horned God of the West. By R. LOWE THOMPSON. *Kegan Paul*. 1929. pp. 168, illustrated. 7s 6d.

No great historical figure—not even Tallyrand—stands in such need of a complete and critical biography as does the subject of this book. But as with the pupil so with the master and father of diplomacy, the very size of the subject and complexity of the character; the many baffling rôles—bishop and prince of Benevento, angel of light and prince of the air—played by each of them, have discouraged the historian. It requires something like omniscience to write about such super-beings and so far as the Devil is concerned we have to recall the caveat of Samuel Butler, that God has written all the books. This pleasantry conveys of course a very serious fact. Granted (and this in itself is an assumption which we really have no right to make), that there is a single consistent personification which we can call the Devil, have we any chance of obtaining first hand accounts of it? Obviously nearly every original document will have come from a hostile source. And this fact leads us back in a vicious circle to the other difficulty already mentioned—the problem as to whether when we have made a whole from fragments and remedied the exaggerations of malice we are left with a single consistent character at all. If the Devil was for most of those who studied him a sink of iniquity, into that sink they would fling all the garbage of their minds. At the very least there must lie in festering layers, choking—if by its nature they may not fill—the bottomless pit, all the projections and suppressions of man's mind, his hatreds and dreads, his sex horrors and his fear nightmares, his terror of his own nature, of his fellows' hostility and malice, of the pursuing cruelty and violence of beast life and the blind cruelty and violence of inanimate nature. Atop of that lie all his death despairs and next his philosophic defeats, as he struggled, and failed, to lay the problem of evil and had to throw out into this cosmic cess-pool all that he could not fit into his ideal.

How can an antiquary approach such a site? Though the lower layers may have ceased to decompose and have become stratified, the upper are still fresh dumps of foetid controversy. If he attempts a cross-section his horizons at once begin to run into one another. It is therefore no disparagement of Mr Thompson to say that he has not been able to recover an unbroken evolutionary series from such deposits. In a book of 168 pages he could hardly have intended to achieve an Origin of such a complicated spiritual Species. He has however a clear hypothesis. It is that the devil, as the medieval world handed him over to the modern, is no philosopher's familiar. He is not the submerged leaden keel with which idealism balances its ship, so that it still rides the waves though crowded to the top-gallant with every stitch of the wind-provoking white sheets of virtue. He is simply the runt of that fecund family, the fertility gods. His horns are horns of plenty, his hooves are the hooves of fat cattle. He has grown lean and bitter in old age as his merry-making was called sin. An austere heaven has drawn off man's devotion. A harsh dualism has left him only the dirty work. But it was not so in the beginning. Once man's whole life was one, and heaven and hell and this world lay about him, perfectly mingled in his tribal infancy. It was a world of terror, for Mr Thompson starts off as so many religions have started, in a cave; and the first portrait we are given, it need scarcely be said, is the so called wizard from Ariège; but it was a world of wonder, too. The epipalaeolithic and the neolithic are the next stepping-stones on which we are supposed to be able to trace in their highly conventionalized drawings the print of the same person—a wizard who is a fertility god. Again we take a leap and come upon a name—Cernunnos. He is certainly horned and probably a god of death; *ergo* he is the apostolic successor of the palaeolithic dancer. Another leap and we are with the devil we

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more or less know, the personage lit by the fires of the Inquisition. Looking back over this immense range of time, can we say yet there are not three persons but one? Certainly, new factors, which completely transformed the conception, came in at the third stage. Whether the first fertility magic had anything to do with a cult of the dead we shall never be sure; but it is quite certain that between Cernunnos and Diabolus completely new and elaborately philosophical conceptions of dualism have been introduced, so that the god or gods of the underworld have taken on a nature which compels any classificatory system to separate them from their earlier form. The devil of the witches had undoubtedly a long native ancestry, but the indigenous stock had been made into a new variety by cross-breeding with oriental importations.

In short this book is a stimulating essay asking a question, and though there seem insufficient reasons to conclude that the answer will be in the affirmative, the hypothesis certainly allows many interesting facts to be brought into line. GERALD HEARD.

BURIED TREASURES OF CHINESE TURKESTAN. By ALBERT VON LE COQ.
Translated by ANNA BARWELL. Allen & Unwin. 1929. pp. 180 with sketch map, and 52 plates. 18s.

This book is a semi-popular account of the second and third German expeditions to the Turfan region (1904-5 and 1905-7). Its German title, *Auf Hellas Spuren*—'On the Tracks of the Hellenistic'—plainly betrays the author's main preoccupation. It is possible that in his insistence on Greek influences he underestimates the part played by the native art of India (Madhura school) in determining the course of Buddhist art, and also the part played by native Chinese painting in forming the styles of Central Asia. New finds are continually making it apparent that the pictorial art even of the first century A.D. in China was already highly developed, and to derive the whole of Buddhist art in China and Japan from the one Indian school of Gandhara is no longer possible. But this insistence on Hellenistic influence has its justification, above all, because it deals with facts. We know what late Greek art is like and can recognize imitations of it. About early Chinese pictorial art we had till recently no trustworthy information. Iranian art obviously played an important part in Central Asia, and now that Herzfeldt has published his frescoes from Samarra it is no longer an eccentricity (as it used to be thought in the case of Professor Strzygowski) to speak of a 'Sassanian landscape'. But at the time of Dr Le Coq's explorations Sassanian painting was still a subject of mere conjecture. He did well, then, to lay emphasis upon a source of influence that could be sifted and checked. The second expedition worked at Turfan and Hami; the third, at Kucha, Karashahr, Turfan and Hami. The results are now to be seen in the Museum für Völkerkunde, Berlin, where whole temples and façades are reconstructed in the most imposing manner. Among the great accessions to knowledge that Dr Le Coq's labours have brought about none has aroused wider interest than his discovery of exquisitely illuminated Manichean manuscripts, some of which are here illustrated. The conception of Mani as an aesthete has been regarded as a piece of romantic mythology; now it has found unexpected support.

It must not be supposed that the book is all archaeology. Indeed, behind the narrative, which is always lively and entertaining, lies (partly concealed) the drama of a highly dramatic conflict. Dr Le Coq does not say much about his relations with that strange character Dr Grünwedel; but there is much that can be read between the lines. It is clear at any rate that the British Museum owes its Central Asiatic treasures not only to Sir Aurel Stein's energy, but also to the dawdling of Grünwedel. A. WALEY.

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PI-TZU-WO. PREHISTORIC SITES BY THE RIVER PI-LIU-HO, SOUTH MANCHURIA. *Far Eastern Archaeological Society, Tokyo and Kyoto, 1929. Pagination not consecutive; English text about 30 pages, Japanese text about 80 pages, with 68 plates, some in colour. Price not stated.*

This is the first volume of a series entitled *Archaeologia Orientalis*. It contains the results of excavations undertaken by the well-known archaeologist Kosaku Hamada, assisted by Yoshihito Harada and other colleagues, both Chinese and Japanese, in 1927, at sites near Pi-tzu-wo, close to the Pi-liu-ho river which separates the Japanese and Chinese administrations of the Liao-tung peninsula. The reader will turn with excitement to plates xxv-xxxii, reproducing two whole pots and thirty fragments in the neolithic polychrome style. They show white and red ornament on a blue ground, thus agreeing with the previously-found Manchurian wares (from Hamacho near Dairen and Daitaisan near Port Arthur), but differing from Andersson's finds in Fengtien, Honan and Kansu, where black ornament is generally applied to a red ground. At this Tan-to-tzu site, from which the polychrome ware came, only one piece of bronze was found, lying near the surface. At a neighbouring site, Kao-li-chai, alongside of implements in bone and stone, were found objects in bronze and also in iron. This site is dated, by the finding of Chinese coins, at about 200 B.C. A piece of cast-iron from the site is the subject of a short appendix by Dr D. Saito. There is another excursus (in German) on the human remains, which the authors find to stand in near relation to the modern Chinese. At the later site (200 B.C.) a piece of glass was found (plate xxxvi, fig. 13). Glass objects have indeed been published purporting to come from the Yin-hsu site (12th century B.C.) in Honan, but their provenance has never been substantiated.

The date of the earlier site (from which the painted pottery comes) is put by Dr Hamada at about 400 B.C., perhaps the latest date as yet assigned to objects of this sort. The volume, in short, is of the highest interest, and should not be missed by any one desirous of keeping abreast with the archaeology of the Far East. A. WALEY.

THE TRAVELS AND SETTLEMENTS OF EARLY MAN. By T. S. FOSTER. *Benn. 1929. pp. 319. 21s.*

This book will certainly fall between two schools. For in the first place it is an attempt, similar to Mr Dawson's *Age of the Gods*, though with a wider range, to give a consistent account of prehistory. The actual material is of course still utterly fragmentary; on the other hand the fragments have now become so numerous that a provisional ordering must be attempted. If no more than for purposes of memorizing we must have some system. But in Mr Foster's painstaking attempt it soon becomes apparent that something is present other than the desire to give an ordered account of all finds. These are so scattered and need, even for their provisional dating, such confirmatory evidence that those which are still controversial should be marked as such; otherwise a completely wrong scale may be given. Mr Foster however has a thesis to prove. It begins to emerge when man's simian ancestry is being discussed. Indeed Mr Foster's conclusion seems to be a variant of the Preacher's. He would say, 'God made man upright but he sought out many archaic specialisations'. Next Calaveras man is accepted as mid-Pliocene. The Trenton and Lansing skulls are accepted as pre-Chellean and Chellean. In Europe evidences which have been taken by most researchers to point to cannibalism are said to show fragmentation burial. As we proceed, this tendency increases and leads to doctrine even more precarious. English archaeology and Chinese phonetics are strained

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indefensibly, until we are forced to recognize that it is a dogma—and that dogma the Diffusionist—that is dictating the value to be given to the facts.

Those therefore who are looking for a critical account of prehistory will be offended. An immense amount of reading has obviously gone to this book but we are given no references, unless a bibliography which cannot represent a tithe of the author's reading can be adjudged such. However controversial the conclusions, they might at least be stimulating if the actual finds on which the author bases his conclusions had been stated. If the book was meant for popular reading and a thorough system of foot-notes would have been out of place, then at least we may plead for a great many more 'mays' or the use of that admirable practice of the Authorised Version whereby, when meaning has to be made from the obscurity of the Hebrew original, the elucidatory word, inserted tentatively by human reason, is put in italics. As it is, it is to be feared that this book will be rejected by many who would have welcomed a text-book of prehistory.

On the other hand there is little reason to suppose that it will prove any more acceptable to the small and emphatic school of dogmatic diffusionism. It certainly seems to smell as much of heresy towards their faith as to the orthodox prehistorian it must show signs of tendentious credulity. The evolution of Diffusionism will one day make an interesting miniature study in the antiquarianism of archaeology. The theory began as crude and definite as verbal inspiration. Since then it has been slowly becoming broader. Still it is doubtful whether this book can be accepted by the faith. For Mr Foster's doctrine is the Anatolian Hypothesis, the name of his eighth chapter, but which might have been the title of the book. For his real interest and main purpose in writing this volume is to maintain that a diffusion of Anatolian stock accounts for the whole of civilization. But even with the Anatolian hypothesis Diffusionism is not made much more amenable to the facts. The advance across the Pacific still remains a problem. For example, to say that because the Easter Island statues probably wore a head-dress—which is quite true—and had their eyeballs inlaid and so had and did the statues from Mohenjo-Daro, that there is thus ground for associating Easter Island with the cities of the Indus Valley, is an association which would link up every culture not under the inhibition of the Second Commandment; for no two sculptural types could be more different than the florid convex naturalistic profile of the one and the archaic, stylized concave profile of the other. If we try a northern route the hypothesis that the Chinese are also products of Sumerian diffusion is no longer admissible.

Indeed it would seem that in this volume we have the unsuccessful fusion of two books—a text-book ordered and uncontroversial, and a contribution to a controversy with which the world of organized studies has no power to deal until the controversialists present a united report. It is to be hoped that Mr Foster will take his book apart, send the thesis to its private address, and give the text-book to the public. **GERALD HEARD.**

A TOPOGRAPHICAL DICTIONARY OF ANCIENT ROME. By SAMUEL BALL PLATNER, completed and revised by THOMAS ASHBY. Oxford University Press. 1929. pp. xxiii, 608, 58 blocks printed as 29 plates; 7 text figures and plan. 35s. or interleaved, 42s.

The late Prof. Platner, whose *Topography and Monuments of Ancient Rome* appeared in 1904 and 1911 had long meditated a topographical dictionary of Ancient Rome, and had invited the collaboration of Dr Thomas Ashby before the outbreak of the war. That interruption materially affected the progress of the undertaking. Dr Ashby's share

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had to stand over. Prof. Platner, who was rejected for military service, devoted himself to the task with diligent labour, and was able to sail for Europe in August 1921 with the main part of the book accomplished, and with the hope that a few months of joint work would bring the book to completion.

A sudden and fatal illness overtook Prof. Platner on the voyage, and the finishing of the work was entrusted by Mrs Platner to Dr Ashby. The task has been protracted, and Dr Ashby has been obliged to work in much additional material, as well as to contribute important articles (e.g. on the Forum and the Palatine) and to edit and revise the whole for the press. His share in the work is estimated by himself 'at from 20 to 25 per cent'.

In its general form and structure the book suggests a comparison with the *Lexique de Topographie Romaine* of Léon Homo (1900). If the two works are studied side by side it is apparent how much the later work has the advantage of its predecessor, not merely as being a generation later, but also in its wealth of reference (especially to the inscriptions) its careful topographical discussions, and its well chosen illustrations. It is to be regretted however that the plan of Rome, which is taken from the earlier book, is too small for comfortable reading without a magnifying glass. It might have been made a third larger without trespassing on the margin.

Such a work needs constant annotation and revision, and interleaved copies are issued for the use of those who may wish to contribute to a later edition, or it may be merely to keep their own references up to date.

The plan of the dictionary has its limitations, to which Dr Ashby calls attention in his preface. It is undoubtedly a drawback that buildings and sites cannot be found under the names current in the Middle Ages or in the older antiquaries, and that others cannot be included for lack of a name that would make a dictionary heading. It may be hoped that some way of dealing with these matters will be found in a later edition. Appended to the Dictionary is a valuable chronological index to datable monuments, by Dr Gilbert Bagnani. It runs from the dedication of the temple of Jupiter Capitolinus in 509 B.C., to the dedication of the Pantheon as a church 1117 years after.

It would add to the interest of the volume, and not materially increase its bulk, if the inscriptions decisive of topographical questions were given in facsimile. It is not every reader that has the epigraphic materials within easy reach, and can look up a C.I.L. reference.

A. HAMILTON SMITH.

PROBLEMS OF PLACE-NAME STUDY. By A. MAWER. *Cambridge University Press.* 1929. pp. 140. 6s.

This little book consists of three chapters which were delivered as lectures at King's College, London. They are entitled Racial Settlement, the Vocabulary of our Forefathers, and Lines of Interpretation. Professor Mawer gives us here a general survey of some of the more important conclusions which have emerged from the work of the English Place-name Survey. As usual he states them in language which is intelligible to the 'general public'; but this does not mean that it is not learned and original in the best sense of both those misused terms.

The book is too short and condensed to summarize, and its contents are just of the kind that one who has closely followed the progress of the Survey might expect. The value of this re-presentation, however, was brought home to the reviewer when he read, on pages 2 to 5, what the author says about the survival of Celtic place-names. In the six counties already published, the names of undoubted Celtic origin are in each case less

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than so in number, out of hundreds enumerated. In Sussex, 'beyond a stray river or two, we have no certain Celtic place-names at all'. These facts tell strongly in favour of the 'clean sweep' hypothesis; but we think it right to utter a word of caution. With the exception of Sussex not one of these counties was at all thickly inhabited during the Romano-British period. Some, such as Worcestershire, were almost uninhabited. Consequently, there may never have existed any well-rooted Celtic names for many of the natural features; and such as did exist, being known amongst so small a number of people, would naturally have little chance of surviving a century of turmoil and devastation. Some such explanation surely must be adduced to account for the 'surprisingly small' Celtic element found in the place-names of Devon—a county for which, we are glad to hear, the material being collected by the Survey is almost complete. Devon was thinly inhabited during the Romano-British period, to judge from the distribution of remains of that period. The adjacent county of Dorset on the other hand was densely inhabited; and we should expect on purely archaeological grounds to find a higher *proportion* of Celtic names in Dorset than in Devon. Time and the Survey will tell us; meanwhile, appetites will be stimulated by Professor Mawer's *hors d'oeuvre*; and the Society itself should gain new members to support its splendid work.

PRIMITIVE BELIEFS IN THE NORTHEAST OF SCOTLAND. By J. M. McPHERSON, B.D. *Longmans*. 1929. pp. xii, 310. 12s 6d.

This valuable study of the primitive beliefs and customs prevailing in the northeast of Scotland during the last three centuries should receive a hearty welcome from anthropologists and students of folk-lore. Precious evidence has been gathered from living witnesses, and from ecclesiastical and burghal records that illustrated the manner in which the Church dealt with the perpetrators of superstitious practices, while a bibliography of seven pages shows the extent of the author's literary researches. His outlook is scientific and he gives a vivid presentation of his material in a minimum of words. Sufficient comparative lore is adduced to enhance the value of the local rites and beliefs, and an occasional clear summary of the evidence adds to the worth of a volume in which no space is wasted on theorizing.

The book is divided into two parts, the first dealing with survivals of nature worship, the second with the Black Art. There are chapters on fire worship and sacrifices, the making of 'needfire', the cult of holy wells and of the spirits of water, trees, stones, caves and corn. Records of the fairies, the home rites, and devil worship, including the lingering devotion to old gods in the dedication of the Goodman's Croft, lead on to the grimmer evidence of the second part.

Witchcraft was a fully organized cult still operative in the 16th and 17th centuries; individual witches continued their practices long after that time. The last execution is believed to have taken place in 1722 and the Act repealing the penal law against witches was passed in 1736. The ritual of the witches and their master is reconstructed largely from the actual confessions of initiates during their trials. Their conventions, methods of working weal and woe, transformations and divination, are fully described, as well as the safeguards employed against their ill-will and the fearsome punishments meted out to those who came before the courts.

The concluding chapter deals with the Horseman's Word, the Miller's Word, and the post-Reformation fusion of the fairies with the witch-world, ending with a comparison of the direct and simple character of nature-worship with the baneful intermediarism of the witch-priesthood, the way of which was for ever against the sun.

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Few of the records have direct bearing upon archaeological problems. Pages 78-83 give instances of the cult of stones and of their recent erection to bring luck: in marking boundaries a quantity of ashes of burnt wood are first laid on the ground, then big stones are placed above them. It may be suggested that, in a second edition, references to stones might be more fully indexed.

One misprint should be noted: on page 58, Acton *Burnell*, in Shropshire, is designated Acton *Barnett*. The story quoted relates to a dripping well (in Ruckley parish) beside the Devil's Causeway, an ancient road of supposed Roman origin: it was first published by the late Miss C. S. Burne in her *Shropshire Folk-Lore*, 1883, pp. 415-6.

L. F. CHITTY.

DIE DATIERUNG DER ERSTEN DYNASTIE VON UR. Von Dr CHRISTIAN.
Zeitschrift für Assyriologie, NF (new series), IV, June 1929. pp. 233-42.*

The problem of the oldest chronology of ancient Mesopotamia is one of long standing. Of recent years discussion has been stimulated by fresh evidence from three main sources—from cuneiform tablets recording the succession of dynasties from the remotest epoch, and from the results of the excavations at Ur and at the adjacent site of Tell el Obeid. We may state at once that today there is a tendency to reduce considerably the great age formerly attributed to Mesopotamian antiquity. The 'long' chronology, which placed the beginnings of history in these lands at about 5000 years before Christ, has been succeeded by a 'short' chronology which places it at about 3100 B.C. German archaeologists now put forward, for the most part, an 'extra-short' chronology. It is this system which Dr Christian attempts to justify in the article under review. His conclusions might be acceptable in themselves if his premises were not susceptible of a different interpretation, and if one had not also to reckon with the civilizations of adjoining countries.

The excavations of El Obeid have revealed to us a group of monuments, notably the remains of a temple, which inscriptions attribute to King Annipadda, of the first dynasty of Ur. This dynasty can only be dated by comparison with the monuments brought to light in the excavations of Tello; the date of these has been approximately fixed by dead reckoning backwards from a known point in history, and by cross references occurring in later documents.

Dr Christian compares the inscriptions of El Obeid with those of Tello which are most archaic in point of language and writing; he finds amongst them certain traits which he equates with similar ones in documents of the earliest kings of Tello. From an archaeological point of view, similar facts emerge; 'plano-convex' bricks, like those of El Obeid, flat on one side and convex on the other, are found also at Tello where they belong to the earliest reigns (Ur-Nina, Akurgal, Eannatum, etc.). Some of the images and scenes figured at El Obeid in copper and shell can be equated with the oldest at Tello. There is thus a general correspondence in the evidence from the two sites.¹ Finally, the discovery at Ur of monuments containing the names of the kings of Tello (Eannatum and Entemena) shows that the first dynasty of Ur was superseded by these dynasties of Tello, and that it began therefore slightly, but only slightly, earlier than Ur-Nina.

* Review translated by the Editor.

¹ I have already stated these conclusions in 'Les tombes royales d'Our', *Mercur de France*, 15 August 1928; 'Les tombes royales d'Our et l'histoire de l'art', *Gazette des Beaux Arts*, June 1929, pp. 321 ff. Mr C. J. Gadd too had determined the relative chronology of El Obeid, the first dynasty of Ur and the archaic period of Tello, by means of a critical analysis of the inscriptions, in *Ur Excavations*, vol. 1 (Al 'Ubaid) 1927, pp. 125 ff.

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But what is the chronological position of all these historical facts? We possess king-lists of the old dynasties of Tello, giving the length of their reigns; there were nine kings from Ur-Nina to Urukagina, and the fifth was actually the grandson of the first, a fact which gives us a clue to the duration of this line of kings. Then comes Lugalzaggisi, of the city of Umma, who captured Tello and who was himself dethroned by Sargon, the founder of the dynasty of Agade, which lasted for 181 years. After that came a dynasty of Uruk, of 30 years; then the Guti, barbarians from the northeast, held the country for 125 years; and when they had been expelled by the liberator Utu-hegal, (who reigned for seven years), there began the third dynasty of Ur, founded by Ur-Nammu. All this is based on the short chronology, according to which the third dynasty is dated 2474-2358 B.C. This short chronology is calculated from astronomical observations recorded by the Mesopotamians themselves, relating to the slightly earlier dynasty of Hammurabi—the first dynasty of Babylon. Recently Dr Kugler, the astronomer, and Dr Weidner, the Assyriologist, have agreed to place the accession of Ur-Nammu at 2300 B.C.* It is from this point that Dr Christian starts; following certain documents, he considers that the conquest of the Guti took place contemporaneously with the dynasty of Agade, which was then already restricted to part of central Mesopotamia; while the dynasty of Uruk reigned at the same time (and not subsequently) over southern Mesopotamia. Dr Christian thus produces the following table of events:—

Ur-Nammu	- - - - -	2300
From the end of the dynasty of Agade to Ur-Nammu (including the Guti and the dynasty of Uruk)	- - -	100
From Annipadda to the end of the dynasty of Agade (including the domination of Ur by Tello, a second dynasty of Ur, and the dynasty of Agade)	- - - - -	180

Since these figures have to be added to the date accepted, according to the new revision, as a starting point, we get, for the beginning of the first dynasty of Ur, the period 2580-2500 B.C. To this date are assigned also the Royal Tombs of Ur, which have yielded stylistically contemporary objects. There is an important difference in the dating, for the usual short chronology gives the following figures:—Ur-Nammu 2474; end of the dynasty of Agade 2649; Ur-Nina, about 3000 or 2900. This would put the first dynasty of Ur and the Royal Tombs at 3000 or 3100 B.C.

What is one to think about these new figures? In themselves they seem to allow a sufficient lapse of time for the historic incidents concerned; they should however be received with caution, for several reasons. The first is that the reckoning of the aforesaid astronomical facts is subject to variations. The revised estimate of the astronomer Dr Fotheringham and the interpretations of the documents by Dr. C. Schoch both nearly confirm the figures of the short chronology. The second reason is that this 'extra-short' chronology does not take account of neighbouring civilizations. It is difficult to explain how Egyptian civilization, whose beginning, even if we adopt the lowest estimates, is placed by Egyptologists at about 3200 B.C., should have preceded the beginnings of history in Mesopotamia by 600 years. The intercourse between Asia and Egypt in early historic times is an accepted fact; it would become inexplicable, as also

* V. Christian and E. F. Weidner, *Das Alter der Gräberfunde aus Ur*. Archiv für Orientforschung, v, 1929, pp. 139-150.

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would the development of Minoan civilization, if we adopted these new figures. Were the offerings made by the Pharaohs of the First Dynasty to the temple at Byblos intended for a colony situated in a land of barbarians? Were the expeditions despatched by Sneferu to obtain cedar-wood from Syria sent to a still uncivilized land? The suggestion seems impossible to accept. I think therefore that Dr Christian's most interesting and learned studies reach a conclusion which can only be accepted if similar researches should lower, by the same amount, the date of the beginnings of civilization in Egypt and the Aegean.

G. CONTENAU.

CURIOSITÀ ITALICHE DI STORIA, ARTE E FOLKLORE I. LEO MONTECCHI.
Nemi, il suo lago, le sue navi. Rome: Luciano Morpurgo. 1929. pp. 123, with
32 plates, and 20 text illustrations. 9 lire.

This little book is the first of a collection of small volumes which it is proposed to publish, dealing either with individual sites or the local customs of a particular district; in future it is to be under the direction of Professor Giuseppe Lugli.

The present volume is certainly not as good as it might be, though it contains some good and interesting illustrations and a certain amount of information. A systematic bibliography would have been useful, and might have taken the place of the conjecture that Caligula built the ships in order to prosecute his amours with Diana! I cannot myself see, as a fact, why the statements that we have that the name of Tiberius was read on one of the pipes should be rejected, while the bronze grille with the inscription CAESAR which was found by Fusconi in 1828 must, one would think, belong to the time of Claudius. As to the nature of the ships, which were simply floating platforms (though the first, now uncovered, has the shape of a ship, but with a very broad beam), our author is more or less right, except that the presence of lead pipes inscribed with the names of Tiberius and of Caligula shows that there was a permanent water-supply from the land to the ships, and that they differed from houseboats or college barges at Oxford in that they could not be moved about even on occasions. It is absurd to say that this idea is to be banished to the realms of fable and that these pipes were only waterpipes for the water from the ships (p. 72). What water? one may well ask. Nor is he very happy in other matters. Prof. Lugli has already pointed out that the temple of Diana at Nemi, like a number of the other great sanctuaries at Latium (the temple of Jupiter Latiaris among them), consisted of a large temenos with a number of small buildings in it: so that we are not here to imagine the existence of a hexastyle temple of the usual classical type on a podium 30 metres by 16 (p. 33).

Nor is the road leading down to the lake from Genzano to be identified with the Clivus Aricinus or Clivus Virbius (not Virbis). This is, rather, the steep ascent of the Via Appia from the ancient post-station of Aricia towards Genzano (p. 39). And the statement on the next page that a second road 'must have diverged from the magnificent Via Sacra, discovered in the last few years, which leads from Ariccia to Monte Cavo, and which, passing by Fontana Tempesta, and reaching to the edge of the crater, must have descended steeply to the lake' does not convince me. The banks of the lake at this point are too steep even for that. Finally, let us close with the hope that a local museum will not be built on the spot. If the remains of the ships are worth preserving *in situ* (supposing that, as Comm. Biagini remarks on p. 112, the first is sufficiently well-preserved to make it worth while to uncover the second), this must of course be done. Otherwise, the less alteration of the landscape and the less building that is done, the better, and things should, as far as possible, be allowed to return to their previous aspect.

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Careful studies were made in 1892* with regard to the question of the supply of water to the lake of Nemi by springs which rise in the interior of the lake basin itself, whether above or below the water level. Of the former class there are two springs, which produce a total of 63 litres per second; while the sub-aqueous springs were calculated as adding 119 litres or nearly twice as much again. So that some 182 litres per second, apart from any help from rainfall, will be available for filling the lake when it has been drained as far as it is desired to drain it. The springs of the larger lake of Albano on the other hand only supply 105 litres per second, the rest coming from the rainfall. T. ASHBY.

ON ALEXANDER'S TRACK TO THE INDUS; personal narrative of explorations on the north-west frontier of India, carried out under orders of H.M. Indian Government. By SIR AUREL STEIN, K.C.I.E. Macmillan. 1929. pp. xvi, 182, with 97 illustrations, 2 maps. 21s.

Sir Aurel Stein left Delhi in February 1925. His first aim was to explore the Swat Valley and its ruined Buddhist shrines. The Swat district is the Udyana of Buddhist legend, the fertile 'garden' famous for its miracles and piety. 'There are memorials of the Buddha wherever one goes and always a stupa or temple to honour them', says Hui-sheng, a sixth century Chinese pilgrim. Many of the stupas, in various degrees of decay, still survive; on fig. 13 Sir Aurel shows one at Amluk-dara, which he describes as the most perfect existing specimen in India. He was able to identify numerous other famous 'sights' described by a succession of Chinese pilgrims—Buddha's footprint, the rock where he dried his clothes, the Stone Couches mentioned by Hsuan-tsang. This latter pilgrim arrived in Swat in the second quarter of the seventh century, about a hundred years after the catastrophic invasions of the White Huns, and he found Buddhism in a state of comparative decay. But the Korean pilgrim Hui-ch'ao, whose *Travel* were discovered by Professor Pelliot at Tun-huang (Chinese Turkestan) and published too recently to be utilized by Sir Aurel, gives an interesting account of the great Buddhist revival that occurred less than a century later. 'The people', says Hui-ch'ao, 'had given up most of their land to the monasteries, and of what they retained a considerable part was set aside for the purpose of supplying the monks with food and clothing. There were more monks in Udyana than laymen'. We thus see that the extreme religiosity of modern Tibet continues a Himalayan tradition.

The main object of Sir Aurel's expedition, as indicated by the title of his book, concerned a far earlier period—that of Alexander's Indian campaigns. The Greek texts have never before been handled by any one with adequate local knowledge. Sir Aurel's identifications are epoch-making. Above all, his correlation of Una with Aornos and of Pir-sar with the famous stronghold captured by Alexander from the Assakenoi are noteworthy feats in the realms of both philology and geography. A third object of the expedition was linguistic research. This is dealt with in a very cursory way. Very few readers have any idea what is meant by a 'Dard language'; and if such terms are used at all, it is better to define them. The illustrations, maps and index are excellent, and Sir Aurel shows throughout that interest in actualities and human situations which makes all his travel-books so different from mere records of archaeological discovery. A. WALEY.

* Carta Idrografica d'Italia. Le acque sotterranee dei colli laziali. Reprinted from vol. 12. Rome, 1892, pp. 28-49.

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ORIENTAL INSTITUTE OF THE UNIVERSITY OF CHICAGO. First Report of the Prehistoric Survey Expedition. By K. S. SANDFORD and W. J. ARKELL. University of Chicago Press. 1928. pp. 52, sketch-map and 29 illustrations. Price not stated.

Dr Sandford and Mr Arkell spent several months in the early part of 1927 in travelling by motor-car, camel, railway and steam-launch in the Egyptian portion of the Nile Valley and by motor-car across the Eastern Desert to Koseir and back, for the purpose of studying the river-terraces of the Nile Valley and Red Sea coast and their contained relics of prehistoric man. This first report does not profess to be a detailed scientific account of the work accomplished by the authors, but is essentially a semi-popular exposition, designed for the educated general reader, of the general nature of their investigations and the views they have formed on the geological history of the Nile Valley and its occupation by early man.

A short introductory chapter, in which the importance of stratigraphical studies in connexion with the finding of stone implements is emphasized, is followed by a brief outline, in very simple language, of the geological history of Egypt, including the first formation of the Nile Valley (which the authors regard as having been eroded to its maximum depth long before the advent of man), its conversion by regional subsidence into a gulf or arm of the sea extending as far inland as Esna, the infilling of the gulf for a very considerable proportion of its depth by deposited sediments, and the re-elevation of the land with consequent regression of the sea from the gulf and re-conversion of the latter into a river-valley. Then follows a chapter dealing with the later stages of the valley's history, including the erosion of the gulf-deposits by the river, and the formation, owing to alternations of climate or to successive earth-movements (both are mentioned as causes), of five terraces at successively lower levels, only the last four of which, ranging from about 30 metres to about 4 metres above the present Nile-level, have been found to contain relics of prehistoric man. The fourth chapter treats of the succession of human industries in Europe and Egypt, and here the implements of the four lowest Nile-terraces are classed, from above downwards, as of Chellean, Acheulian, earliest Mousterian, and Mousterian types respectively. In a final chapter is given a brief narrative of the movements and adventures of the Expedition.

The report is admirably clear and readable in style; and in view of the avowed purpose for which it was written, one ought not, perhaps, to cavil at an almost entire lack of any allusion by the authors to the work of the many investigators who have preceded them, nor at the omission of even brief accounts of the evidences on which many of the statements in the report are based. But it seems a pity that the old myth of an abandoned Nile-bed existing in the Libyan Desert should have been resurrected (on p. 6); and it is with regret that we infer, from a sentence on p. 44, that the heights of the various terraces were estimated by the comparatively rough method of aneroid-observations, rather than by a more exact procedure, such as could easily have been followed in the Nile Valley with its abundance of precisely levelled bench-marks.

Professor Breasted, through whose efforts the necessary funds for the Expedition were granted, and who contributes a preface to the report, is to be congratulated on having secured from Oxford two such well-qualified and enthusiastic field-workers as Dr Sandford and Mr Arkell. Their first report can be recommended for perusal by all who are interested in the prehistory of Egypt; and a fuller and more technical account of their work would be cordially welcomed by geologists and archaeologists alike. JOHN BALL.

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THE MAORI PAST AND PRESENT. By T. E. DONNE, C.M.G. *Seeley Service and Co. Ltd.* 1927. pp. 287, with 46 illustrations and map. 21s.

As a Government official Captain Donne held many responsible appointments in New Zealand, and is well qualified through his long acquaintance with the native people and their language to give an instructive and sympathetic picture of their mode of life. In this book, while making no pretence to a very deep scientific treatment of his subject, he has yet managed to cover a wide range of topics in interesting fashion, and to treat some of them, as wood carving and the working of jade, from a novel angle. His remarks on the transition of Maori culture from the primitive to the 'civilized' state merit attention, though he sets perhaps too high a value upon the attempt to assimilate the native completely to European standards.

At some points there is a tendency to over-emphasize the more sensational features of the old-time Maori life—to represent it, rather unfairly, as 'a place where there existed neither legal nor moral restraint, where might was right, murder a pastime and cannibalism a cult' (p. 208). A more adequate treatment of the whole subject would have laid stress on the less picturesque but more fundamental matters of work and the management of property, while analysis of these in relation to the social structure, the grouping into families and tribes, the kinship system and the position held by the chiefs would leave the reader with a less confused idea of the native law and morality. The reproduction of dialogue in Maori 'pigeon English' (*sic*) is to be deprecated, and is at times anachronistic, as when introduced into the story of the launching of the schooner *Herald* in 1826; the use of such a plural as *karakias* is unnecessary, the *s* being a European accretion. Apart from these and certain other minor errors the book offers an entertaining if not too abstruse description of Maori custom.

RAYMOND FIRTH.

EXPLORATIONS IN HITTITE ASIA MINOR: A PRELIMINARY REPORT.

By H. H. VON DER OSTEN. *Oriental Institute Communications* no. 2. *University of Chicago Press.* 1927. pp. VIII, 104 with 101 figs.

EXPLORATIONS IN HITTITE ASIA MINOR, 1927-28. *Oriental Institute Communications* no. 6. *University of Chicago Press.* 1929. pp. 153 with 160 figs. 4s 6d.

The extraordinary importance of Asia Minor as the ancient seat of a peculiar and powerful civilization, and also, as we now begin to realize, as the main intermediary through which the achievements of ancient oriental culture were handed on to Greece, stands in striking contrast with our astonishing ignorance of its monuments and other remains. Time and again, in the study of pre-Hellenic history, one has to confess that further progress is impossible or that conclusions cannot be vindicated, because no evidence from Anatolia is available. But there is, at last, a fair chance that this gap in our knowledge will be largely filled. The Oriental Institute of the University of Chicago has resolved to back efficaciously the enthusiastic author of the above named publications, and is enabling him to carry through a five-years campaign in three directions: exploration, survey, and excavation.

These results of the work will be finally embodied in larger publications, while the *Communications* now under review are described as 'popular illustrated reports of Institute projects in the form of preliminary bulletins for general readers', and they fulfil this purpose admirably. The first starts with a survey of the rôle of Asia Minor in history, and then describes in a lively way the author's first voyage of exploration. His descriptions of landscape, together with the numerous illustrations, give one a vivid

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impression of the land of the Hittites in its physical peculiarity. The military antecedents of the author suggest to him interpretations of certain constructions, e.g. as watch towers, tumuli, and signal stations which would not, perhaps, have occurred to others, but which may happen to be correct in the case of the Hittites, a racial minority uniting under their rule a country by nature unfit for unity.

The second volume gives an account of the further work, with an enlarged staff, including the extremely important mapping of certain areas with the exact notation of all ancient remains. Furthermore a number of newly discovered monuments are already published here, while the results of the excavation of Alishar, undertaken to obtain a sequence of pottery fixed by stratigraphical observations, will soon be published in full and are here only summarized. Those who heard the author's lecture on this subject at the archaeological congress in Berlin last spring, will regret that the general reader, for whom the *Communications* are intended, does not receive this story in a somewhat fuller form. For it was most instructive—an exemplification as well as a vindication of archaeological methods—to note how the relative chronology of the wares, such as I tried to establish some years ago on the basis of intrinsic (stylistic) evidence and of evidence from surrounding countries, was confirmed by the excavations, which, on the other hand, enabled the explorers to attain a precision, and a richness of detail, which only careful work in the field can produce.

The difficulties which explorers have to face become apparent on almost every page. The author and his collaborators are to be congratulated on the courage with which they carried on, and the Oriental Institute on the farsightedness which induced it to use its organization and its resources for this novel project.

H. FRANKFORT.

- I. EPIGRAPHIC SURVEY OF THE GREAT TEMPLE OF MEDINET HABU. By HAROLD H. NELSON. II. THE ARCHITECTURAL SURVEY. By UVO HOELSCHER. (Seasons 1924-28). *Oriental Institute Communication no. 5. University of Chicago Press. 1929. pp. xiv, 50, with illustrations and 3 plans.*

The great organization known as Chicago House, which stands between the desert and the sown behind the Colossi of Memnon at Thebes, has issued this bulletin, which gives in some fifty pages the history and aims of the Expedition together with a very clear explanation of its technical methods of work. Everything that money could do has been done to equip and staff the building and library which house the Expedition and to eliminate both human and mechanical error in the records made. Perhaps no piece of archaeological work was ever planned on so generous a scale.

The first few pages of the communication deal with the historical significance of the events recorded on the walls of the temple of Rameses III. Mr Nelson emphasizes the importance of this period when the older civilization of the Aegean and of Greece itself was being destroyed by the northern invaders, the ancestors of the Greeks of History. The artistic value of the historical scenes once covered with plaster and colour is noticed. Professor Hoelscher then describes in part II the architectural investigation of the temple and its annexes. The Expedition is fortunate in having secured the services of Professor Hoelscher, whose knowledge of Egyptian architecture is so great, as his reconstruction of the two palaces of Rameses III prove. On page 39 mention is made of *poisoned* arrowheads of bone and flint. Was it possible to establish after so long that these arrowheads were once really poisoned? Also were not the grooves in the sandstone walls (cf. photograph on p. 17) made by sharpening spears or arrows of copper and iron? Arrowheads of bone or flint must have fallen into disuse before the time of Rameses III, except perhaps for sporting purposes.

F.M.C.

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Editorial Notes

USUALLY we devote these opening pages to comments upon current events of general interest rather than to the record of actual occurrences. There are times, however, 'between seasons', when the current is a little sluggish—when the work of one season is over and that of the next not ready for consideration. There is no lack of activity in the archaeological world this summer, rather the opposite; but the work of excavation does not as a rule begin until June or July, and we go to press before even the principal achievements are known and revealed. We propose therefore to vary the theme by describing an aeroplane tour we took last June, for the purpose of looking at some promising sites at a time of year when they might be expected to show up well. We apologize for the slight but inevitable intrusion of the personal element imposed by the character of the narrative.



The tour originated in a suggestion by Captain H. J. Andrews and was carried out in his Blackburn Blue Bird, a two-seater aeroplane which proved admirably adapted for the purpose. Captain Andrews flew it, and it says much for the reliability of modern air-craft that from start to finish there was not the slightest hint of engine-trouble, or any other kind of hitch. The fact that we could sit side by side and compare notes verbally was also a distinct advantage.

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We started from Heston aerodrome (London) on Friday afternoon, 20 June. The first night we slept at Brough on Humber. Next day we flew along Hadrian's Wall to Carlisle and slept at Longtown. The day after we followed the western route (Roman and modern) to Glasgow, did some exploration of Roman sites in Perthshire and returned, by the Roman eastern route, to York and so on to Brough again. On Monday we returned thence to London. About 70 ancient sites were looked at, many of them being new discoveries of the pilot's or the observer's, and we followed Roman roads whenever possible in preference to modern ones or railways. The chances of discovering new sites were thus increased, and the actual number of sites seen, both new and old, was naturally greater than it would otherwise have been.

The first discovery was made near Gravenhurst, in Bedfordshire, not far south of Cardington where the airship was moored. Captain Andrews observed a very plain 'crop-mark' in a cornfield, consisting of a small square within a circle. Curiously enough this very object had been discovered on the ground on 8 June by a reader of *ANTIQUITY*, and again, on 17 June, by an officer of the Royal Air Force. The plan is not unlike that of the Roman signal-stations on the Yorkshire coast; but no such signal-stations have yet been reported inland. In plan the coastal signal stations consist of a circle surrounding a square with rounded corners, but the Gravenhurst square has most distinctly angular corners. Its age and purpose must remain doubtful for the present.

Thence we flew northwards to our main objective, the Roman town of Durobrivae. (The site is in Huntingdonshire, in the extreme northwest corner of the county; the modern village of Castor lies in Northamptonshire just across the Nene). Here we made the most remarkable discovery of the tour. We saw the plan of the Roman town, with its streets and some of its houses plainly outlined in the corn. It was what we hoped for, but more than we had dared to expect. We knew that the area of the town was planted with corn; but so is Verulam, and we had flown over Verulam about half an hour earlier and seen nothing. Here at Castor we saw a plan as clear as that similarly revealed in 1928 at Caistor, Norfolk. It was all the more valuable because it was quite a different plan. But there was even more than

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this. Just north across the rivulet, well outside the plainly visible ramparts, was outlined in the corn the plan of a fine Roman camp, complete with rounded corners and, on the north side, no less than four parallel ditches. It reminded one of the fort at Ardoch in Perthshire which we visited two days later. Such a camp must surely belong to the 1st century, the period of the Roman conquest of England. Its survival through the Roman period—when the whole site was covered with pottery kilns—and through the vicissitudes of subsequent history, to be revealed thus as shadow in the corn is surely one of the most romantic episodes of modern discovery. It is also a new historical fact of prime importance to students.

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On Saturday we flew from the Humber past York to those remarkable earthen circles, five in all, on Hutton Moor and near Thornbrough. They have frequently been described (see British Association Excursions Handbook, Leeds meeting, 1927), and it has been suggested that they may have contained 'Woodhenges', but although some of them were under corn, we could see no signs of post- or stone-holes. We drew a blank at the Devil's Arrows, nor did the adjacent Roman town of Aldborough, the tribal town of the Brigantes in Roman times, reveal much. We saw one or two possible long barrows, and a few minor sites, and after filling up at Cramlington flew along the Roman wall to Carlisle.

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To profit most by the overhead view it is necessary to know the local topography as only the groundsmen can learn it—on foot. Such knowledge we had not got; so that, although the flight was a valuable prelude to the Pilgrimage we were shortly to make, under expert guidance (see pp. 358-61), we fear that we missed much through ignorance. Captain Andrews spotted a new four-sided enclosure on Matfen Moor, and we both had a good look at the remarkable cultivation-banks near Housesteads and Great Chesters. Air-photographs, however, are needed fully to elucidate them, and we shall await with great expectations those which are being taken of the whole length of the Roman Wall by the Royal Air Force.

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We landed in a field near Longtown to fill up, and then set out for Scotland. We flew round Burnswark in Dumfriesshire, that remarkable

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flat-topped hill which the Romans besieged. We thought we saw traces of a circumvallation, but a subsequent visit on foot proved that they were quite illusory, and that in such cases (as contrasted with crop-sites) ground-work is essential to check air-observation. (The last word on the subject has been said by Mr R. G. Collingwood in the *Trans. of the Dumfriesshire and Galloway N.H. and A.Soc.*, 1926.

After reaching Lockerbie it began to rain and got very hazy ; so, as we had to cross some high ground before reaching Renfrew and we wanted to have a good view, we returned to our field at Longtown and slept that night in the town. Next morning we followed the Roman road up Annandale across the pass by the Devil's Beef-tub into Clydesdale. It was plainly visible throughout, and beyond the camp at Clyde Burn we got several hints as to its further course which await an opportunity for investigation on the ground.

We proceeded by Renfrew into Perthshire, flying over Ardoch and along the Gask ridge. The Roman fort at Grassy Walls near Perth (described in 1771 by General Roy, but correctly placed on the map in 1917 by Mr Graham Callander) was only partially visible, but the western side coincided exactly with Mr Callander's published plan; air-photographs are promised. We had a look at Inchtuthill and Cleaven Dyke to the northeast of it—an earthen rampart between two ditches and a Roman work surely—but could see no signs of its continuation in either direction.

We were equally unsuccessful in seeing anything fresh at Carpow and Crichton Hill, where Roman forts must have existed ; but this proves nothing. The fort at Newstead near Melrose was also invisible, though it has been excavated with the greatest care and thoroughness by Mr James Curle. Cappuck and Channelkirk were also unremunerative, though both forts are proven beyond any shadow of doubt. Pennymuir and Makendon were visible but needed a low light to do justice to their intricacies. Under such favourable conditions they would give splendid results ; and one hopes that air-photographs of them may one day be secured. The native camp on Woden Law was a fine sight, and it too should be photographed, together with the Roman road winding over its shoulder.

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Continuing southwards we flew several times round the magnificent oppidum of the Brigantes at Stanwick, which we hope to explore thoroughly on foot later on. On Monday morning we visited a site near Hibaldstow, where over an area of 100 acres Roman pottery and building-remains are abundant. It has been located recently by Mr C. W. Phillips, following up certain earlier clues; and it seems that there was a walled Roman town there. We saw what might be the outline of two lengths of the Wall, but the site as a whole was disappointing. Later we flew along King Lud's entrenchments, an earthwork of the Grim's ditch type, and then southwards along Sewestern Lane, whose junction with Ermine Street proved to consist of a straight section of causeway, clearly of Roman age. After another look at Castor, which increased our admiration, we flew slowly in the teeth of a 40-mile wind to Ircchester, another Roman town, only to find that there was nothing at all to be seen of the plan. We saw some barrow-circles between Goldington and Howbury, near Bedford; we satisfied ourselves that from the air no more could be seen of the eastern end of Grim's ditch near Berkhamsted, and finally we had a last stroke of luck in rediscovering Stukeley's so-called Roman camp on Greenfield Common, just south of Staines reservoir.

There is no room for a summary, but the moral is obvious. The young archaeologist who wants to make discoveries must join a flying-club and learn to fly. Not until then will the harvest be reaped. Our tour sufficed to show that England is still, for the archaeological aviator, an almost unexplored country.

Subsequently we had the pleasure of taking part in the Pilgrimage of four days along the Roman Wall. (An account by Sir George Macdonald is printed on pp. 358-61). The weather was perfect, like the organization. To do a leisurely tour of this kind in good company, where it was possible to 'talk shop' continuously from morn till far on into the night, was a rare delight. The Wall itself is the key to the military history of Roman Britain. During the present century intensive excavation of the most rigidly scientific kind has solved many of the major problems. The solution of the remainder is in competent hands and is proceeding apace. Here 'digging for knowledge' is the normal incentive which controls all excavation. So long as there remain gaps in our knowledge that can be filled by these methods of

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enquiry, the study of Roman Britain will retain that virility which it most certainly possesses at the present moment. One kept wishing that Professor Haverfield, who planted so many of the seeds now bearing fruit, had lived to take part in the Pilgrimage.

That at such a time the Wall should be threatened with virtual destruction by a company promoter is almost inconceivable. But that the danger is still a real one is clear from Sir George Macdonald's remarks on p. 361. When one who has held a high position in the service of the State speaks out so plainly, it is time for every educated person to rally to his support. We ask our readers to do so in the proper way, by writing to their Member and by adopting all constitutional means of opposition. The issue is a clear-cut one, of private greed versus national honour. British archaeologists must not allow this supreme act of vandalism to be perpetrated under any conditions whatsoever.

In the present number we insert an appeal, which we cordially support, on behalf of the campaigns Miss Caton-Thompson is preparing in the Fayyum and the Libyan oases. Miss Caton-Thompson needs no introduction to the readers of her article on Zimbabwe (*ANTIQUITY*, December 1929) and her earlier one on prehistoric remains in the Fayyum (September 1927).

We hope our readers will bear with us if we also make a special appeal for funds to support the Colchester excavations described on pp. 362-4. These are concerned not with the Roman town but with the earlier native British capital of Cunobelin. The work is necessitated by the construction of a by-pass road, and, like Caerleon, is of an s.o.s. character. There has, indeed, been a cry of 'all hands to the spades' this summer; and the work is being directed by Mr J. P. Bushe-Fox, Inspector of Ancient Monuments, H.M. Office of Works. The important address, however, is that of THE COLCHESTER EXCAVATION COMMITTEE, Barclays Bank, Colchester, and the time to use it is NOW! Work will of necessity be carried on continuously.

The results already to hand show, as was only to be expected, that this is one of the great sites of the kingdom.

PLATE I



FOUNDATIONS OF THE ROMAN FORT OF VESPASIAN AT BETH-PELET

The Linking of Egypt and Palestine

by Sir FLINDERS PETRIE

IN the last four years, excavation has been going on in an untouched region, the desert border of Palestine, within a walk of the Egyptian frontier. All the district beyond Gaza was formerly raided so often from the south that it was unsafe; now we can live eighteen miles out in the wilderness, surrounded by Arabs, without any defences, and never have a single dispute or trouble. Such is the result of the Occupation. Lawrence and Woolley, with surveyors, made a map of the region down to Kadesh Barnea and, on that map, half of the names survive which are listed in Joshua as the ' uttermost cities of Judah '.

The purpose of fixing the work of the British School of Egyptian Archaeology in this area was to gather the history of the Egyptian frontier and, by means of objects dated from Egypt, to settle the history of the products of Palestine. This has been done even more than we hoped.

Two sites have, so far, been searched. Gerar (Tell Jemmeh) lies nine miles south of Gaza, and here towns were piled one on the other, to a depth of thirty feet, from 1500 to 460 B.C. Beth-pelet (Tell Fara) lies eighteen miles south of Gaza, and was occupied from the Hyksos down to the Roman period, 2000 years and more; it was also a great prehistoric centre. Full plans have been made, and published, of all the buildings opened in each town, and of the contents of each of the large tombs in the wilderness below.

It will perhaps be more intelligible to describe the results from both of these sites together, ranging from the well known time back into the dim unknown. At Beth-pelet the hill was crowned with the foundations of the Roman fort of Vespasian, dated by three groups of coins of Nero just before the Jewish war. The fort was square, 50 ft. by 66 ft., with various out-buildings on the top of the hill (pl. 1). This shows the steep slope on the north and west sides, at the angle of rest, down into the valley some 150 feet below. The greatest work of this time was an immense revetment along the stream, to prevent floods from undermining the hill. It was of sandstone blocks in hard lime cement, 300 ft. long, 30 ft. thick, and over 15 ft. high, and was dated by scraps of pottery imbedded in the cement.

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Before that, the Persians had built at Gerar great conical granaries like those represented on Assyrian sculptures. This was the base of supplies for the army attacking Egypt, store enough for 70,000 men for two months. The latest invasion in that century was in 455 B.C.; the granaries must have been built by 457, while a fine Attic lekythos beneath a granary could not be before 460—a close dating.

Earlier than that, Psammetichus I had built a square fort at Gerar, 150 ft. by 115 ft., like his forts at Naukratis and Daphnae. A large number of Syrian fibulae of about this period were found; they differ from the European by having the pin made separately, with a stub end behind the coiled spring, to fit into a hole in the body. They are all of knee form, and the earliest, about 1200 B.C., has deeply chased bands of ornament; the latest type, about 500 B.C., has a curved bow, and no spring but a pin swivelling on a rivet.

The Assyrian invaders left a fine lazuli cylinder, engraved with the dugong seal, representing the god Ea; we also found a rubbish pit full of broken Assyrian pottery, the table service of the governor.

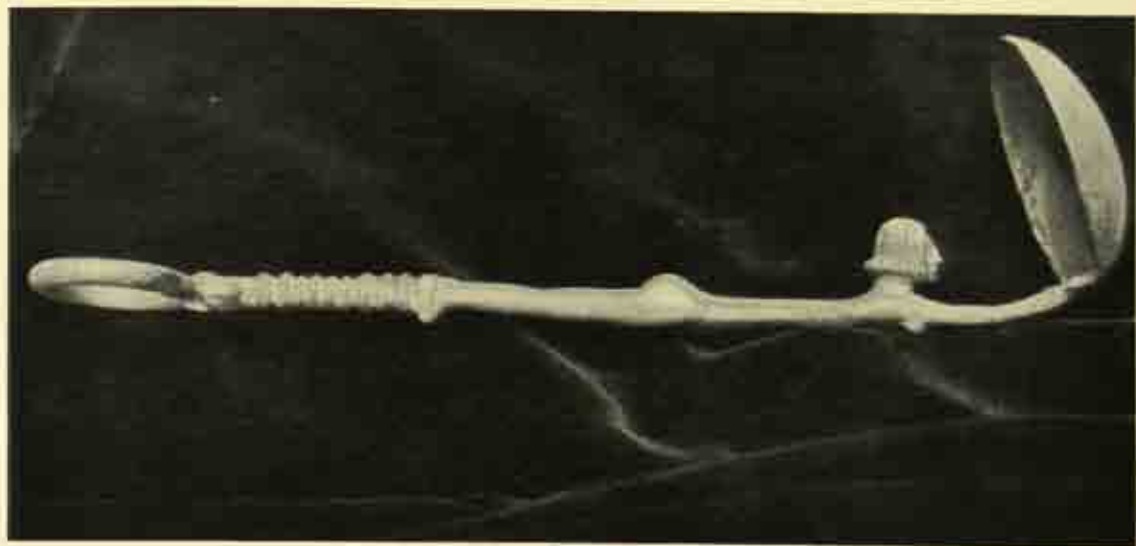
During the Jewish age Gerar was rebuilt, probably by Amaziah, in fairly regular lines. At Beth-pelet a tomb of a governor had in it a silver dipper and a silver bowl (plate II). The workmanship has eastern affinity, the lotus engraving is in Assyrian style, the bulls' heads at the handle are like Persian work; the handle itself, in the form of a swimming girl, is Egyptian in motive, yet the style of the face and hair are probably Syrian. The gadrooned silver bowl is Assyrian or Persian in taste, so the whole influence was from the Elamite-Assyrian side. In the same tomb were the bronze fittings of a couch, complete. All its corners were formed of three tubes cast in one, to take poles of hard wood for legs and sides; other banded rings fitted on the legs, and were linked by iron ties from leg to leg. It seems evident that such was the construction of the tables and seats represented in Assyrian sculptures. All this accords with the strong influence of Assyria when Ahaz visited Damascus, and remodelled the Temple furniture in Jerusalem.

The great figure before this was Shishak. He has been belittled by critics; Cheyne was mad enough to say that his name was a corruption of Cushim. Now we find that he was the greatest builder known in Palestine. His wall at Beth-pelet, 22 feet thick, is built of bricks of hard yellow clay, nearly double the usual size, and laid in clean sand foundations five or six courses deep. No such foundations are known otherwise. Tens of thousands of men must have been employed

PLATE II



SILVER BOWL FOUND IN THE TOMB OF A GOVERNOR, BETH-PELET



SILVER DIPPER FOUND IN THE TOMB OF A GOVERNOR, BETH-PELET

PLATE III



AN EGYPTIAN SCENE, ENGRAVED BY A SYRIAN ARTIST ON A COLOUR-BOX FOUND AT BETH-PELET

THE LINKING OF EGYPT AND PALESTINE

in brick-making and building. This was not only in the south, but at Megiddo, near Haifa, he left a great triumphal stele. Far from the accounts of him being exaggerated, he was a much more important ruler than has been described in the book of Kings.

The period of Solomon was the richest in Palestine, when even a remote place had much better store of fine stone and gold jewellery than the Egyptians or Babylonians at that time. This was due to getting astride of both the oriental trade routes, the Euphrates and Red Sea, and the king actively trading between Egypt and the north. The political result of David's trust in his Bedawy guard of Pelethites, drawn from the frontier fortress Beth-pelet, was far reaching; it embittered the Hebrews and led to the revolt of the ten tribes.

The growth of iron working has been fixed not only by single tools, but by the position of furnaces, at Gerar. There was a little work as early as 1350 B.C.; by 1175, the metal was cheap, hoes and picks of some pounds' weight being made, and a large furnace in use. Swords were made and tempered in a long pottery bed heated by the gases from a furnace at one end.

The Egyptian Residency at Beth-pelet, in about 1300 B.C., was 80 ft. square, well built, with fitted door-frames of wood, erected before the bricks or plaster. It was roofed with cedar beams, which blazed and fell in at the destruction, lying, burnt through, on the floors. The store of Syrian wine was smashed, the sealings lay about; it appears, by the quantity of the jars, that the place was in occupation, and taken by storm. The governor's bedroom and bathroom were found, and in a room, near by, lay the burnt remains of a box which contained stocks of colour. On the lid had been a band of ivory veneer, with an Egyptian scene, but engraved by a Syrian artist (partly shown in plate III). At each end of the scene was half of a palm tree, non-Egyptian in style. The governor, seated in his folding chair, on a leopard skin, is dressed in the style of 1300 B.C. Behind him is a pert Syrian boy, with a fringed tippet on his shoulders, waiting with folded hands. A maid-servant stands before the governor, to pour the wine into his bowl; behind her is a dancing girl, and further back another girl playing double pipes. Wine, women and song were his delights. The attendants are followed by two men with groups of birds hung from poles across the shoulders, and a man carrying a calf on his back. The further scenes, not shown here, represent the trapping of birds in the marshes, and two large Cretan bulls. The style of the whole is very vivid. The animated faces, quite un-Egyptian, the spring of the dancer and of the men, the

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bending of the carrying-pole, the helpless look of the calf panting with its mouth hanging open—all this has more immediate living action than is usual in Egyptian work; the nearest comparison is the XVIIIth dynasty scene of the heated cook running with the dishes at Tell el Amarna (*T.A.* pl. v). Though we often see, in the tombs, examples of Syrian work brought into Egypt and valued there, none has come down to us till now. At last we find what vitality and spirit the Syrian could show, and we may begin to suspect that the new life at Amarna was all due to Syrian artists.

While the Egyptian made tombs in the hill-side from 1300 to 1160 B.C. (dated by scarabs), the Philistines dug a row of five great square tombs from 1300 to 1130 B.C. in the plain below. These sepulchres each served a family for perhaps a century; the burials had with them local pottery painted with Cretan patterns, and daggers of Cypriote forms. One of these, at about 1230 B.C., was of steel, with a cast bronze handle; it had been snapped short, anciently, and was not of soft iron. These tombs evidently belonged to the Lords of the Philistines, and the use of metal was, even later than this, restricted to the Philistines, and withheld by them from the native tribes who were only allowed flintwork.

The age before the Egyptian conquest was one of the dimmest in the history. The Hyksos were known to have come down through Palestine into Egypt and held the Delta, with a suzerainty over the south. They were hated by the Egyptians, and scarcely any monuments have survived. Only scarabs are left, to commemorate 32 out of the 38 reigns assigned in the dynastic lists. The first remains discovered were the great square earthen camp at Tell el Yehudiyeh and a few tombs which I found in 1906, and a similar fort at Heliopolis in 1912. These forts are 1500 ft. square, containing about 36 acres. The bank stood 45 ft. high, with an outer slope of about 40°, faced with smooth stucco. The only access was by a sloping gangway, rising over the bank. Such forts are known in North Syria, and are accepted now as descending from the type used by the Turkomans. The camp at Yehudiyeh was later strengthened by a great stone wall round the foot of it, filling in the space between that and the slope, but this was only due to Egyptian influence.

At Beth-pelet we have recovered far more about the Hyksos than we knew before. Lying on the road from the hill country to Egypt, it was heavily fortified by the Hyksos who, true to the tribal reliance on steep glacis defence, deepened the ravines at each end, and dug a great fosse 80 ft. wide and 40 ft. deep, to cut it off from the plain.

THE LINKING OF EGYPT AND PALESTINE

The Hyksos cemetery contained three dozen tombs, mostly large double family vaults, with scarabs imitated from Egyptian work. The best of the scarabs are equal to those of the XIIIth dynasty, and they are degraded by local copying till they reach the lowest stage before the expulsion of the Hyksos. There is, in this way, an approximately graded series through that dark period. In the latter part of the series is a scarab of a well-known treasurer, Ha-al, of whom dozens of scarabs are found in Egypt; it is certainly not of Egyptian work, and it shows that the Hyksos rule was unified in Palestine and Egypt late in the period. These rulers were not, then, a horde of local chiefs but were kings of wide dominion.

The outcome of all this is of European importance, as it proves that the Hyksos dynasties, xv and xvi, were contemporary with the Egyptian xiii, xiv, xvii. The shortening of this age to 200 years by modern writers is due to an assumption that a document was dated in the shifting year (without a leap year); if dated in the fixed seasonal year, which the Egyptians used, there is no difficulty in accepting the historical records of the dynasties that remain to us. The Hyksos age and the XIIIth Egyptian dynasty began in 2375 B.C. and the XVIIIth dynasty in 1587 B.C. This will restore a chronology which was usually accepted till about a generation ago, and it results in placing the date of the Great Pyramid about 3750 B.C.

The civilization of the Hyksos seems to have been entirely acquired. They used the pottery types of Palestine when in that land, and of Egypt when in the Delta. They had bronze daggers of Cretan and of Cypriote forms. There is nothing that seems to belong to them, as a race. Being 'Shepherd Kings', they naturally brought with them only the trappings of nomads. In Egypt they employed the Egyptians to continue building temples as before. The Turkish invasion is perhaps the nearest parallel.

Before the Hyksos, the Bronze Age is yet unknown, but I hope to fill this gap by working a great early site in the coming winter.

Next, we reach the early Copper Age, and the decay of neolithic work, as we have discovered a settlement with about eight feet depth of strata. Brick walling was used here, and granaries were built of beehive form, open at the top. Jars of pottery had ledge handles, well-known in the fourth prehistoric age of Egypt. Another settlement, purely neolithic, had stone mace-heads, also known in the fourth age, so it was not long before the use of copper. In that settlement the flint hoes were beautifully regular, straight-sided, ridge-backed, and often slightly

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ground. Microlith flintwork was highly developed in a factory, with very regular cores of translucent smoky colour. Fire-stands of basalt were also made. Three earlier settlements show the rise of the microlithic industry in stages, and the use of it for making flint drills, with which are found the broken beads of carnelian and green felspar left from the working. With the earliest microlith work is associated some pottery well-known in Syria, the thick cups which have a loop handle from brim to base. These are dated by an imported example in Egypt of the middle of the third prehistoric age. Before all this, we found a settlement nine feet deep, containing flint hoes of a form which is barely out of the triangular mesolithic stage; there was little or no pottery. Strange to say, the people of this age made many little clay figures of dogs. Now it is just in this region, some three thousand years later, that the dog tribe of Kenezites, with the name of Caleb, appear in alliance with Judah. It seems that they were aboriginals of the land.

Before all these half dozen neolithic stages, there was an immense palaeolithic population. This has left behind tens of thousands of flint implements which have been rolled in the stream bed. Some of these implements are of new forms, as skew-handled borers, and massive double-handed picks, but the majority follow the well-known types, and some are indistinguishable from Suffolk examples. There is a very long range, from unworn flint back to implements of which the faces are almost lost from abrasion.

The outline of the many interests of our Palestine work, from the time of Vespasian back to the Palaeolithic Age, will show what a promising new field this region is, and what large historical gains have been secured. As usual, all this work of discovery is very costly, and, this fiftieth year of my researches, a special fund is being raised, that it shall not be always hindered by lack of support. We require for the 400 workers more than a hundred pounds a week. As we have no grants, we depend on individual help from the public. The present ground is specially important for throwing light on the Biblical record, disentangling the successive ages of the past of man, and linking up the prehistoric times of Palestine and Egypt.

The End of the Maya Old Empire

by J. LESLIE MITCHELL

THE early nineteenth century witnessed a remarkable reversal of judgment on the American pre-Columbian cultures. Prescott's romantic histories and Lord Kingsborough's monumental *Mexican Antiquities* are inspirations of earlier and less sceptical eras. Such pleasing imaginings as that the Spaniards 'overthrew in Mexico a greater civilization than their own' received scant support from the archaeologist who had displaced the antiquary, or from the critical historian who interpreted him. Dr Robertson¹ summed up the verdict of the new investigators:—'The inhabitants of the New World were in a state of society so extremely rude as to be unacquainted with those arts which are the first essays of human ingenuity in its advance towards improvement'. He characterized Cortes's 'emperors' as 'headmen', the gorgeous palaces of the Conquest as 'huts or mounds of rubble', the Aztec Empire as a 'league of primitive tribes'. Research, both among the ruins of the Mexican Valley and in the histories of the more prosaic conquistadores, established a singular lack of anything on the pre-Columbian continents which could be described as other than a tawdry barbarism. Lord Macaulay, no Americanist, and therefore doubtless following Robertson, when reviewing Major Sir John Malcolm's *Life of Robert Clive* (1836) and comparing the achievements of Clive with those of Cortes, wrote: 'The victories of Cortes were gained over savages who had no letters, who were ignorant of the use of metal, who had not broken a single animal to labour, who wielded no better weapons than those which could be made out of sticks, flints, and fish-bones'.

Although it is now known that the manufacture and use of all metals except iron were fairly common among the native peoples of the two continents, the last hundred years of American archaeology has substantiated rather than modified such statements as Macaulay's. America at the time of the coming of the Europeans contained nothing

¹ *History of America*, re-issue 1820.

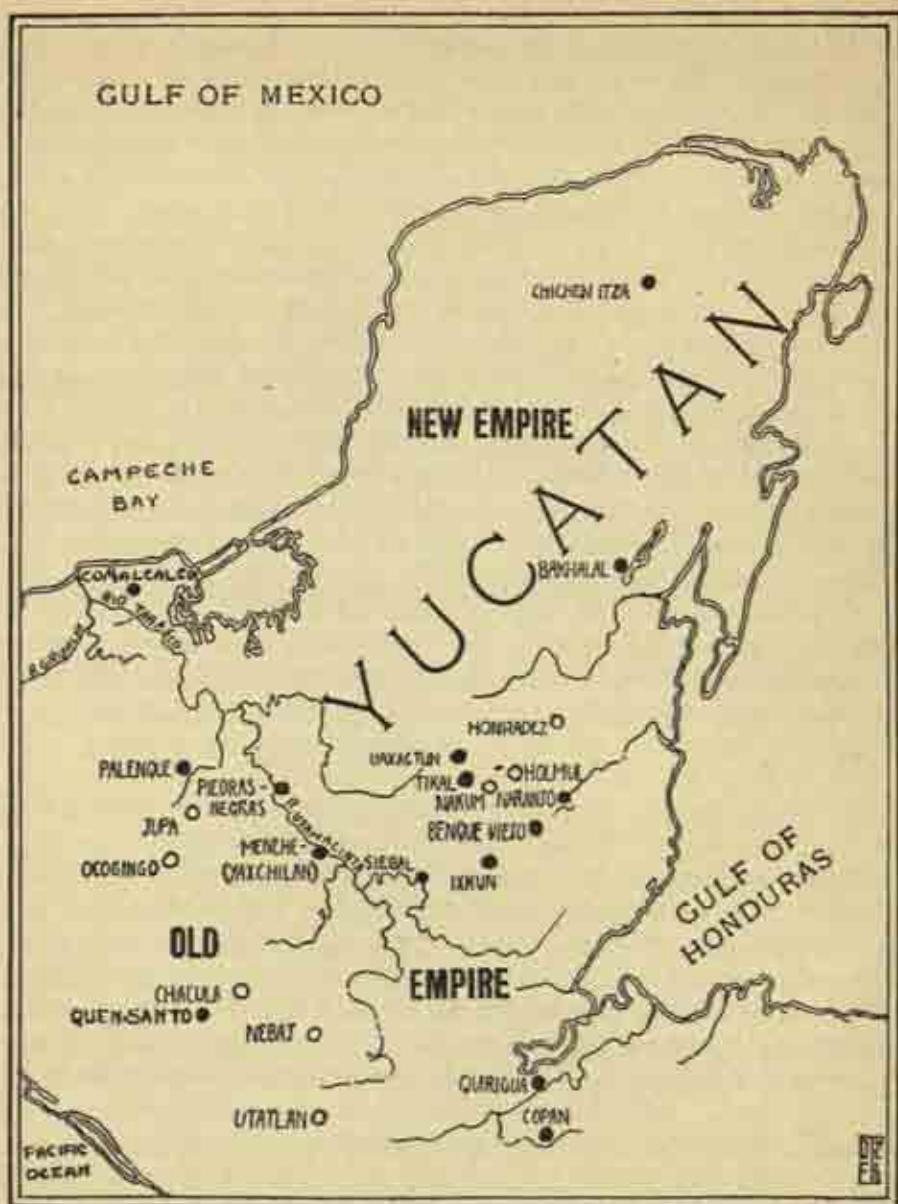
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that might be classified as a true civilization. But that this had always been the case is by no means certain. The labours of innumerable investigators—explorers, archaeologists, ethnologists—begin to reveal that something which was either civilization, or rapidly approaching that indefinite cultural horizon, once flourished in the Central American forests.

A hundred years ago all Mexican and Central American ruins were still spoken of as 'Aztec', in spite of the hauntings of the ghostly 'Toltecs'. The Maya of Yucatan were given little space by either Robertson or Prescott. They were presumed to have been an Aztec-influenced tribe at a slightly lower level of culture than the Mexicans. They had been mentioned by Cortes and Bernal Diaz, conquered by the two Montejos, and their history—the usual thin comminglings of fantastic legend and fable—written by two clerics, Lizana and Cogolludo. Remote on the lands of the Pacific coast the Quiché were also recognized as a tribe of Mayance blood, and—even from a modern point of view—justly assessed as 'barbarous'. But the land lying between the Pacific coast and Yucatan was almost without note in the histories.

This stretch of land, watered by the Grijalva, Usamacinta and Pedro joining in confluence to flow into Campeche Bay in the north-west, and by the Rios Hondo, Belize, Grande, Motagua and Chamelicon, flowing into the Gulf of Honduras in the southeast, is a swampy and densely forested region, partly comprising the Mexican state of Chiapas, partly British Honduras, and partly Guatemalan territory. Guatemala in the eighteen-forties was still a part of the old Central American Republic. Between the issue of Sir John Malcolm's book and Macaulay's review, and while Prescott was completing his *History of the Conquest of Mexico*, it was the scene of the explorations of John Lloyd Stephens, an American traveller and diplomat, who, in the intervals of seeking a stable government with which to negotiate some nebulous proposals of the President of the United States, visited eight ruined cities. He was accompanied by the English artist, Frederick Catherwood. The account of his explorations,² was principally of interest because of Catherwood's remarkable illustrations. These disclosed the fact that the strictures passed on the pre-Columbians had been altogether too severe, that something incompatible with barbarism, in point of architecture, sculpture, and the possession of an extraordinary hieroglyphic script, had once existed in the Usamacinta basin and

² *Incidents of Travel in Central America, Chiapas and Yucatan*, 1841.



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surrounding country. Its remains—identified, of course, as 'Aztec'—had indeed been pointed out previously by Charnay and others, but Stephens and Catherwood were the first to make them generally known. In spite of innumerable differences, not so much in type as in technique, and a common script supplying the surest link, these remarkable cultural evidences were soon brought into connexion with the ruined cities of the historic Maya of Yucatan.

Among modern Americanists there is now something approaching unanimity in the belief that in the tract of land under consideration—a great inverted triangle in the heart of Central America, with a line drawn from Comalcalco to Tikal as base, and Copan in Honduras as apex—the first and greatest cultural climb of the pre-Columbians took place. What was at least the great semi-civilization of a settled and highly organized people blossomed into the rearing of scores of building-complexes which are supposed to have been the religious centres of long-vanished cities built otherwise of wood or adobe. From the middle of the eighth Maya cycle to the end of the tenth, a period of some 450 years, sculptural and architectural art in those 'complexes' passed rapidly from an archaic phase to a naturalistic, from a naturalistic to a formal, from a formal to a flamboyantly archaistic, and then ceased altogether.* Stated more cautiously, the datings in the curious calendar and script which accompanied those art manifestations ceased, a little after the close of the tenth cycle, to appear on the monuments of the region.

This, according to Professor Morley,³ was not a 'sudden cessation of the monuments in the individual cities when each was at its cultural and aesthetic apogee, but a gradual abandonment of the region as a whole, covering a period of about a century'. The cities were presumably deserted, the great cultivated lands left to be reclaimed by the jungle. The survivors of the catastrophe or catastrophes which led to the abandonments apparently fled northeastwards into the barren peninsula of Yucatan and there carried on an attenuated culture until the arrival of the Europeans at least a thousand years later.

'The Maya', says Dr Spinden⁴ in his exhaustive survey of Old and New Empire art, 'produced one of the few really great and coherent

* The photographs illustrating this article have been specially selected by the author to bring out this process of growth, maturity and decline of Maya Old Empire art.—EDITOR.

³ S. G. Morley, *The Inscriptions at Copan*, 1920.

⁴ H. J. Spinden, *A Study of Maya Art*, 1913.

PLATE I



STELA AT COPAN, ARCHAIC PHASE
By permission of the Trustees of the British Museum

PLATE II



STELA AT COPAN, FORMAL PHASE, *c.* A.D. 113
By permission of the Trustees of the British Museum



PLATE III



STELA AT COPAN, C. A.D. 753

By permission of the Trustees of the British Museum

PLATE IV



SLAB FROM PALENQUE
By permission of the Trustees of the British Museum

MAYA OLD EMPIRE

expressions of beauty so far given to the world, and their influence in America was historically as important as was that of the Greeks in Europe'. The consequences of the overthrow of the first American essay at civilization in that territory variously known as the Old Empire and as Xibalba—the latter perhaps a misnomer from Quiché myth—may have been more analogous to those produced by the collapse of Rome. There probably took place the destruction or dispersal of such organized skill and documented knowledge as were never again available to the pre-Columbian nations, though on the fragments of the destroyed culture were built the magnificent barbarisms of Toltec, Aztec, and Yucatecan Maya.

The event has been explained by at least a score of contradictory theories. Of those, five at least still find champions among modern Americanists. Concerning neither the end of the Old Empire, nor its 450 years of history, is there a scrap of contemporary record extant which can be interpreted—even should the sculptural inscriptions of the ruined cities contain historical data. In the middle of last century a clue to the glyphic writing appeared to have been unearthed with the discovery, by the Abbé Brasseur de Bourbourg, of the three-centuries old manuscript *Relacion de las cosas de Yucatan*, compiled by Bishop Landa, one of the earliest and ablest clerics to come in contact with the New Empire Maya after the Spanish Conquest. The manuscript explains the Maya calendrical system in part and purports to provide a Maya 'alphabet'. But the calculiform signs set down by Landa have proved no Rosetta stone for the decipherment of either the few surviving New Empire codices or the glyphs on the monuments of the ruined cities. Neither New nor Old Empire Maya appear to have possessed an alphabet: the glyphic writing enshrines some sort of syllabary. In spite of years of research, carried out with or without the doubtful aids of Landa, and along the lines laid down by Forstemann and Seler, only a few signs, mostly astronomical, have so far been transliterated or interpreted. The Maya scholar examining the ruins of an Old Empire site is in the position of a millennial Malayan investigating the remains of London with no better equipment than a knowledge of our calendar and systems of notation. He can read the dates on the public statues and buildings, but is quite unable from the associated legends to identify a single individual or be certain of the purpose of a single building.

The correct correlation of Old Empire dates with the modern Christian (Gregorian) calendar is still uncertain, a process attempted with the aid of New Empire datings contained in the *Books of Chilán*

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Balam. These are Yucatecan tribal histories reduced to writing by Christianized Maya *after* the Spanish Conquest, and set down in Latin script. Their evidence is frequently contradictory and has given rise to widely-divergent correlations. Certain German archaeologists still place the beginning of the eighth Maya cycle as late as the tenth Christian century, thus bringing the end of the Old Empire close to the opening of the Spanish conquest. But no such populous region as Xibalba of the thousand cities was discovered by the conquistadores: the Usamacinta and Guatemalan cities had been abandoned long before Cortes' famous march from Mexico to Honduras Bay. He certainly encountered no Maya whatever except the transplanted Itza on Lake Peten. At the moment two other correlations are in vogue—the Spinden-Morley, which places the beginning of the ninth cycle in A.D. 176, and the Bowditch-Joyce, which places it 270 years earlier, in 94 B.C. To the present writer, influenced by Sahagun's dating for the coming of the Toltecs to the Mexican Valley—though it is by no means certain that this event had any connexion with the Old Empire's fate—the Bowditch-Joyce correlation appears the more probable. But the matter, together with the complicated calendrical systems in general, is outside the scope of this article. A Maya cycle covered nearly 400 years, and the city-civilization of the Old Empire triangle appears to have come into being at or about the opening of the Christian era and to have closed towards the end of either the third or fifth centuries A.D. Rome and Copan, the dominant cities of the dominant empires of two continents, may have fallen on the same day.

The origin of the remarkable Xibalban culture is as mysterious as its downfall, and important in that it may offer some clue to the latter event. Professor Morley brings the old Empire Maya from the north, on the evidence of a small statuette dated towards the end of the eighth Maya cycle. This was found north of the Old Empire tract, in the state of Tuxtla. Still further north, on the Gulf of Mexico, is the tract of country inhabited at the time of the Spanish Conquest by the Huasteca, a primitive people of Mayance speech. Professor Morley (who, like most Americanists, denies extra-American influence in the formation of the Xibalban civilization) marches his Early Maya down from the Huasteca region. A progressive branch of the proto-Maya stock, they came southwards into Central America, acquiring en route their distinctive script and sculpture, and arriving in the Usamacinta basin prepared for the first adventure of civilization in the New World.

Of this migration there is, however, no trace apart from the Tuxtla

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statuette, which may well have been an export from the Xibalban region. The Huasteca are beside the point; to the west and south-west of Xibalba lay the territory of the barbarous Quiché, also of Mayance tongue. Neither they nor the Huasteca had any knowledge of the script or fully-evolved calendar. If the Quiché also originated in the Huasteca territory, and shared in the civilizing southwards migration, only racial amnesia would explain the complete absence of its influence in their primitive buildings and sculpture.

Dr Gann⁵ regards as the Old Empire Maya the descendants of the 'Archaic' peoples of the Central American highlands; a branch migrated from those highlands to the sea-coast, acquired culture, and commenced city-building. He admits, however, an immediate lack of proof; there seems to exist far less connexion between the primitive pottery of the 'Archaic horizon' and Old Empire art than between the nebulous ancient culture and that of the Nahuatlaca (Toltec and Aztec) of Mexico, who were certainly late immigrants from North America. Neither Professor Morley nor Dr Gann attempts to explain why it should be that their Xibalban Maya, originating somewhere near the Gulf of Mexico, yet reared their earliest city—so far discovered—at Uaxactun, remote on the borders of British Honduras.

Captain Joyce⁶ believes the Xibalban culture was evolved in the region where it is found, even though there are no traces of a period when the script and calendar were in a primitive state (they appear as highly developed on the first inscription as on the last). Other theories derive the Xibalbans from the Mound Builders of the Mississippi⁷ and from 'Antilia', a fragment of submerged Atlantis itself submerged early in the third century B.C.⁸ But in both cases the one certain requisite—a calculiform inscription—is missing. As part—an integral part—of the diffusionist heresy, Professor Elliot Smith⁹ and Dr Perry¹⁰ account for the Old Empire through the civilizing agency of the 'Children of the Sun', a culture drift of ruler-groups from across the Pacific, and with its original inspiration in ancient Egypt. But between any development of Egyptian picture-writing and that of Xibalba there is

⁵ Thomas Gann, *Ancient Cities and Modern Tribes*, 1926. (Reviewed in *ANTIQUITY*, 1, 357-6).

⁶ *Mexican Archaeology*, 1914.

⁷ J. Genet and P. Chelbatz, *Histoire des peuples mayas-quiché*, 1927.

⁸ L. Spence, *Atlantis in America*, 1925.

⁹ G. Elliot Smith, *Elephants and Ethnologists*, 1924.

¹⁰ W. J. Perry, *The Children of the Sun*, 1923.

no similarity whatever. They are racial vehicles of thought evolved in the completest ignorance of each other.

Some two centuries before the opening of the Christian era, therefore, a people of quite untraceable antecedents on the American or any other surviving continent, in possession of an elaborate script and the most highly developed calendar yet known to us, began to build their great temple-complexes in a sporadic fashion in the triangle of Xibalba. Of their calendar Dr Spinden says: 'The Maya calculated an almost exact correction for the excess of the true year over the vague 365 day year. The excess amounts to about .24 of a day, and their correction seems to have been one day in four years for ordinary purposes and 25 days in 104 years for longer stretches of time. The latter correction is more accurate than that of the Julian calendar and nearly as accurate as that of the present Gregorian calendar put into service as late as 1582'.

They used a vigesimal system of notation, apparently with considerably more skill than such a system warrants, and had discovered, in advance of Old World mathematicians by at least a thousand years, a sign for zero. The 'Venus-count' of their calendars suggests a more highly developed technique in planetary observation than was possessed by any other culture before the invention of the telescope. They erected on the hills above Copan the gnomons of the greatest sundial in the world. These, Drs Spinden and Gann seem to suggest, were used for regulating the seasonal clocks of their civilization. In the same city there is an altar-frieze which appears to portray a city-wide congress of astronomer-priests, met for that great rectification of the Maya calendar so frequently mentioned in Yucatecan tradition—'the putting of Pop in order'. Such a congress of scientists at that time would have been impossible in any part of the Old World except China.

The first date of the Maya era (Spinden-Morley correlation) was 3485 B.C. Americanists generally regard this date as too remote to have historical significance, and as probably an invention of the Maya mathematicians for the purpose of synthesizing their various calendars into the elaborate unity attained by that calendar at least 500 years before its use on the monuments of Xibalba. But this reformed calendar is arranged for, and is capable of, dealing with periods of time as great as five million years. Such a concept of *elapsed* time in the world's history is the greatest achievement of the Early Maya mind of which we have any knowledge, and suggests to the imaginative

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the possibility that the Xibalbans may have had some knowledge of the earth's geological phases.

As in ancient Egypt, architectural science was mostly devoted to the erection of temples and temple-adjuncts; the frequent Xibalban 'towers' may have been observatories. Certain other structures, perhaps used as priestly colleges or libraries, were also built in the 'central complex' of each city. Those 'colleges' have been compared to the North American Indian 'long-houses', the tribal council-houses. There is good reason to believe that they were never, in our sense, palaces, though this term is frequently applied to them.

In spite of his achievements in abstract mathematics, the Xibalban had not discovered the principle of the true arch. The corbelled arch in use throughout the region made the building of a second storey almost, though not quite, impossible, and left all rooms exceedingly narrow and high. Also, it is doubtful if in the whole of the Old Empire tract there was ever an architect with a knowledge of bonding corners.

The phases of Xibalban sculpture have already been noted. It was undoubtedly a religious or temple art, even, perhaps, in the case of the elaborate stelae. These were menhirs sculptured, in greater or lesser degree, to the likeness of statues—sometimes undoubtedly portrait-statues—and were raised at regular intervals in the plazas of the cities, and profusely dated and inscribed. Captain Joyce assigns Old Empire sculpture, especially as manifested on the panels of the Palenque palaces, a higher technical level than Babylonian or even Egyptian. That it was ever other than formal, the portrayal of types, not individuals, has been denied. But the extraordinarily individualized sculptures discovered in an underground chamber in Comalcalco in 1926, by Messrs Blom and Le Farge¹¹ of the Tulane University expedition, effectively prove the contrary. Some of the Palenque statues probably represent women.

Whether on temple walls or on stelae the sculptured figures are apparently always those of priests or priestesses. None of the figures in the Central Xibalban or southern area is portrayed with weapons. Captain Joyce concludes that the Maya Old Empire was singularly peaceful, and probably under some central government. The building-complexes have no appearance of being fortified. Dr Spinden and Professor Morley point out, however, that not all the scenes portrayed are of peaceful character. In northwestern (and presumably border) towns

¹¹ F. Blom and O. Le Farge, *Tribes and Temples*, 1926.

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such as Piedras Negras representations of tortured warriors bound to trees and of disarmed and dejected captives squatting in front of triumphant conquerors have been discovered. The border position of the cities containing such sculptures must be emphasized. There is no good reason to think that civil war was common in Xibalba. Possibly the government of most of the cities, whether or not these were leagued in a political as well as a cultural 'empire', was theocratic in character. Except for the members of a priestly militia, the warrior had probably passed entirely from the Maya scene.

The general type of portrayed Xibalban has a full, heavy face, a retreating forehead—head-malformation was undoubtedly practised—blank and rather expressionless eyes—the statues were probably painted—and ears distended with great copper plugs. This was evidently the dominant type of Old Empire Mayan. Dr Gann, in the course of his yearly explorations in Central America, has come to the important conclusion that the bulk of the populace differed both in race and origin from the ruling caste. The sculptured figures of subsidiary priests, apparently not of the dominant race, are fairly frequent, and possibly represent freedmen elevated from a subservient race of helots. The Palenque stuccos are rich in portrayal of sacrificing or worshipping priests standing on the backs of crouching grotesques who are possibly slaves. Substantial proof that two distinct races did indeed occupy the Old Empire tract simultaneously might also provide an important clue to the end of that Empire—a possibility which Dr Gann does not pursue.

From excavation and the evidence of the sculptures a little is known of Xibalba's manufactures in pottery and textiles. But we still know nothing, directly, of its religion, social organization, agriculture, or—a matter of keen dispute—its knowledge of metals—though the astronomical and mathematical achievements of the Old Empire Maya would place them high in at least semi-civilized status were their implements and weapons proved to be sub-Macaulayan. Gold was worked. A few ornaments of copper or 'accidental' bronze have been unearthed. In view of the amount of flint and obsidian tools and utensils discovered, reinforced as these discoveries are through judgment of the ruins by certain artistic criteria, it is usually maintained that the buildings were raised and the sculptures and inscriptions executed with the aid of stone implements only. Mr Hyatt Verrill,¹³

¹³ A. H. Verrill, *Old Civilizations in the New World*, 1929.

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writing of his researches among the ruins of the apparently Maya-influenced Coclé culture of Panama, makes a disturbing interpellation in the unanimity of archaeologists :—

' On one occasion I selected several hundred stone tools and implements obtained from the site of the Coclé temple, and, outlining a coarse, simple scroll upon a fragment of soft stone which was a portion of an elaborately sculptured column, I set four of my Indians to work upon it with the prehistoric tools. Although the four were unusually intelligent and skilful men, and despite the fact that they worked and laboured diligently for a week, and broke or wore out all of the stone implements, their united efforts failed to result in any noticeable carving or even in a recognizable pattern in the stone'.

The dense forests which immediately surround the Xibalban ruins at the present time are re-encroachments of jungle upon originally cleared spaces. In view of the amount of labour necessary to rear the great temple-complexes, Professor Morley calculates that the population of the Old Empire tract was at least 500 times as great as at the present day. On the analogy of Chichen-itza and other New Empire cities at the time of the Spanish Conquest, Copan and Palenque may each have numbered its citizens by the hundred thousand.

To support such populations the presumed maize-plantations must have stretched for leagues around each city. Considering the number of those cities, and the certainty that still more will be discovered, even the more conservative Americanist finds himself compelled to picture the whole of the Usamacinta basin—to take only one region—as almost one vast garden at the height of the Old Empire's prosperity, with the forest-lands reduced to narrow strips. Dr Gann believes that some form of intensive cultivation was practised in the neighbourhood of the cities.

With such-like aids of scattered fact and deduction an uncertain glimpse is obtained, through the darkness of fifteen centuries, of the flowering of a civilization at once childish and precociously mature. Superficially, it had every evidence of vigorous life and promise of spreading abroad its cleruchies all over Central America. Its traders had probably reached as far north as New Mexico; Sr. Max Uhle¹³ discovers Maya cultural evidences remotely south in Ecuador. And then, in ones and twos, unrelatedly, the Xibalban cities are abruptly

¹³ M. Uhle, *Las Antiguas Civilizaciones Esmeraldeñas*, 1927.

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abandoned, the Old Empire tract entirely deserted, and, in the opinion of Professor Morley, left so deserted for over 800 years.

The first defection occurred in 9.13.0.0.0 (A.D. 163 in the Bowditch-Joyce correlation) when Palenque, the Old Empire Florence, ceased to date its monuments and was presumably abandoned. It had had a life history of barely sixty years, and during that period gives evidence of having risen to cultural heights unsurpassed by any other Xibalban city. It is possible that Comalcalco, in the extreme northwest, was abandoned at the same time. There followed a pause. Then, between 9.18.0.0.0. and 9.19.10.0.0. (A.D. c. 262—293) the first American civilization appears to have suffered blow after staggering blow. First, about A.D. 267, the great southern city of Copan, the cultural and possibly the political capital of the Empire, ceased to date its monuments. In the same year Menche (Yaxchilan), lying far in the north, midway the cities of the Usamacinta basin, was abandoned. Five years later gives the last date found at Ixkun. In 9.19.0.0.0. Piedras Negras in the north, Uaxactun in the east, and Quirigua in the south, separated by almost the entire stretch of Xibalban territory, the guardians of the surviving triangle, were extinguished. Naranjo went next, in 9.19.10.0.0. Of the whole Empire only Seibal and Tikal were left.

This list of dates, the hour-strokes for the death of the great pre-Columbian culture, is amplified by no direct historic data whatever. In A.D. 301 two events, faintly illuminating, apparently took place: Benque Viejo and Flores were *founded*, the former destined to last a brief twenty years, the latter forty. For by 10.2.0.0.0. (A.D. 340) the two elder cities of Seibal and Tikal, together with the short-lived Flores, had also been abandoned, and the entire Xibalban territory presumably depopulated.

No clear view of the magnitude of this tragedy can be gained without stressing the astronomical and mathematical achievements of the Xibalbans and the density of population which the city-centres must have possessed. The catastrophes or catastrophe which burst on the Central American triangle depopulated the region of no sparse and barbarous tribes: it killed the promise of a high civilization and may have affected the fortunes of millions. Whatever the remnants of Xibalban culture transported to Yucatan, whatever the number of fugitives which formed the Great and Little Descents of Yucatecan legend, it is certain that thousands of Old Empire Maya, including probably most of the members of the dominant and cultured castes, perished. In the founding of such minor sites as Flores and Benque Viejo it is

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possible to see temporary gatherings of refugees, but behind, in the great basin of the Usamacinta and surrounding country, from Quirigua to Tikal, either wholesale extermination or equally wholesale relapse into barbarism overtook the Maya.

Dates later than 10.2.0.0. survive outside the Xibalban region at three sites, Tulum and Chichen-itza in Yucatan, marking the founding of cities by eastwards-straying refugees, and Quen Santo, remote in the west, on the Chiapas border, a city which appears to have lasted a bare twenty years.

The supreme difficulty in finding a theory to explain the facts satisfactorily is the sporadic fashion in which the cities appear to have been abandoned. Captain Joyce hazards a guess at a southwards descent of barbarians—the 'Toltecs'—as part-cause. Somewhere towards the end of the third century A.D., according to Sahagun's dating of the Mexican traditions, new tribes (now considered to have been of Shoshone blood and of the same Nahuatl racial stock as the later and more famous Aztecs) were reaching the Mexican Valley, slaying the quinametin, or giants, and bringing records of migration from an unidentified Huehuetapallan. These tribes seem to have ranged in culture from the palaeolithic savagery of the Chichemacs to the comparatively advanced barbarism of the Toltecs, or 'Builders'. (The name of the latter suggests the fantastic possibility that they may not have been of pure Nahuatl stock, but partly composed of descendants of the Mississippi Mound-Builders). It is therefore possible, though not very probable, that by the end of the ninth Maya cycle either these invaders or some autochthonous tribes displaced by them, were pressing on the northwestwards outposts of the Old Empire. But it is hardly likely that effects of the Nahuatl invasion were felt in Central America as early as 163, when Palenque was abandoned.

Further, as Captain Joyce himself has pointed out, the temple-complexes show no trace of forcible capture by invaders. Against this might be urged the likelihood that such invaders, burning and destroying the wood and adobe cities, would probably, through motives of religious dread, leave the stone-built centres intact. In the circumstances the possibility of a great pre-Toltec raid across the Grijalva to the destruction of Comalcalco and Palenque cannot be ruled out entirely. But it could have been little more than a raid, seeing that most of the other Xibalban cities survived it by at least a century.

Copan may have been overthrown by southern barbarians, but the fall of Menche, far in the north and at the same time, cannot be

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explained by any theory of invasion. Piedras Negras, still further north along the Usamacinta River, survived it a good five years. Yet Piedras Negras itself, together with Uaxactun and Quirigua, impossible for a common enemy to attack—Uaxactun could have been attacked only from Yucatan and it is fairly certain that the Peninsula was still uninhabited—were all abandoned in the same year. Nor, if Uaxactun was violently overthrown by foreigners, is it possible to explain why Tikal, twelve miles distant, should survive the older city by a good sixty years and then be itself extinguished.

Dr Spinden is explicit: 'The explanation of the eclipse of all that was finest in Maya civilization is not far to seek. Any long-continued period of communal brilliancy undermines morals and religion and saps the nerves and muscles of the people as a whole. Extravagance runs before decadence and civil and foreign war frequently hasten the inevitable end'.

Professor Morley is equally explicit:

'While it is undoubtedly true that flamboyancy in decorative motives increases steadily during the Great Period (of Xibalba), reaching on the last monuments at the different cities to an almost bewildering ramification of detail, it does not follow that the Maya could not have carried out this extravagance of design even further if they had had more time in which to do so; and, so far as technique, treatment, and the like are concerned, the latest monument in each city is technically the best, showing no loss in skill and proficiency in technical processes up to the very end'.

He himself accepts, tentatively, as do Messrs Blom and Le Farge, the theory which has perhaps the most supporters at the moment. This is that the Xibalbans' methods of agriculture, probably as primitive and wasteful as those of their descendants in Yucatan, gradually exhausted the land surrounding each city. Populations multiplied and the circles of cultivation grew tough mats of grass and weed impossible for the Maya hoeing-stick to penetrate. Agriculturists had to push further and further out into the jungle, bring more plantation stretches under cultivation, and in time find those stretches also grow barren in their hands. Ultimately, huge concentric rings of unproductive grassland surrounded each city and civilization broke down on the problem of transporting, without the aid of domestic animals, the produce of the leagues-distant plantations to the teeming centres. The populations therefore abandoned the cities—the oldest sites earliest

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since these were surrounded by the widest circles of unproductive land—and drifted eastwards into Yucatan in search of virgin territory.

There are certain serious drawbacks to the acceptance of this theory. We know nothing of Xibalban methods of agriculture. It is doubtful if the primitive methods ascribed to the Old Empire Maya were practised extensively even among their degenerate descendants of the New. The Old Empire cannot be judged by study of modern Maya—degenerate descendants of degenerates. Dr Gann's Maya, with some knowledge of intensive agriculture, seem much more probable. Further, the respective ages of the cities are far from supporting the theory of soil-exhaustion. Palenque was abandoned after a bare sixty years of occupation, Quirigua after eighty-five, Ixkun after thirty. And it is unlikely that the soil of Benque Viejo became exhausted in twenty years while that surrounding Uaxactun remained productive for over four hundred.

Dr Gann leans to the belief that the Xibalban Maya abandoned their homes and set out on the stupendous eastward exodus at the command of their priests, in the fulfilment of 'ancient prophecies'. He cites, as analogous, instances of modern Maya tribes suddenly abandoning prosperous regions for obscure religious motives and also quotes what has long been thought to be the classic New Empire example of 'abandonment-complex'—the desertion of the great metropolis of Uxmal by the T'utal Xiu, who decamped overnight to the miserable nearby townlet of Mani. But it is safe to assume that no people abandons such habitat as Xibalba, hallowed as it must have been with memories of the greatest triumphs of the race, under no other compulsion than priestly prophecy. The priests themselves, town-dwellers to a man, would have been the first to suffer in such voluntary migration. Certainly, if they instigated the abandonment of the Old Empire cities, their prophetic powers were at fault, for in the resultant confusion of centuries the presumed theocracy of Xibalba was succeeded by the congerie of warrior-ruled states in Yucatan. Whatever the aberrations of modern Maya tribes the T'utal Xiu appear to have had reasons urgent and cogent enough for their flight from Uxmal: the abandonment took place immediately after the great pestilence described in such grisly detail in Landa's *Relacion*.

The pestilence theory to account for the depopulation of the Old Empire is no longer entertained seriously. It, also, fails to explain why the cities were neither suddenly nor progressively abandoned, but given up haphazard, without regard to grouping or position. Nor would

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a great pestilence have taken nearly 150 years, from 9.13.0.0.0 onwards, to sweep the country.

Professor Morley devotes a considerable amount of space to a detailed examination of the belief of Dr Huntington that about A.D. 600 (which fits in with the Spinden-Morley correlation of 10.2.0.0.0 as A.D. 610) climatic changes on the Pacific coast of the United States resulted in a rapid decrease in the rainfall, reducing great stretches of country to desert land. At the same time, apparently as some sort of equipoise, the rainfall in Central America, and especially along the basin of the Usamacinta, increased and stimulated forestal growth to such an extent that the jungle advanced and devoured the plantations. Maya agriculture found itself faced with entirely incomprehensible seasonal conditions and staggering difficulties both in weeding and reaping. With the increased rainfall, transforming great regions of the cultivated Xibalban garden into swampy forest land, the breeding-grounds of the mosquito were greatly extended. As probably happened with Rome, the Old Empire was assisted to its fall by the failure of a primitive medical science to combat the spread of malaria.

Undoubtedly great areas in the vicinities of the cities show evidence of natural re-forestation. But this may have taken place—would, in the nature of things, have taken place—without any increase in the rainfall. Climatic conditions in such regions as the Tikal-Uaxactun at the present day seem quite incompatible with the southwards extension of Dr Huntington's ingenious theory. Dr Gann and other archaeologists make constant reference to the lack of water near the Old Empire sites: exploration has to be carried out in a country at once parched and clothed in luxurious vegetation. The possibility of an entire failure of the water supply appears more likely than an increase in the rainfall.

Individually inadequate, most of the theories of abandonment can yet be grouped in a plausible explanatory mosaic. Art grown flamboyant and decoratively archaistic may be no proof of decadence, but it points, at the least, to a flagging of the cultural impulse, a low spiritual vitality, and it is not too much to assume a lessened power of resistance to violent change as their concomitants. Xibalban agriculture may not have been of the excessively primitive character imagined; yet, faced with sudden and incomprehensible climatic changes—of whatever nature—in an era when the creative spirit was at its lowest ebb, it may indeed have proved unable to cope with the situation. Cities may have starved and under such desperate circumstances priestly



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leaders prophesied lands of plenty in the uninhabited and unexplored Yucatecan peninsula. Additional spurs to exodus may have been supplied by the sporadic raidings of barbarians or the incursions of equally sporadic pestilences.

Even so, the piecemeal evacuation seems to lack a central motive. A development of Dr Gann's contention that more than one race peopled the Old Empire tract may supply a clue. The high culture which raised its first monuments in Xibalba *circa* 200 B.C., may have been of extra-American (though apparently neither Asiatic nor European) origin, and the script, calendar, and mathematical systems originally un-Maya. The mysterious culture-bringers may have enslaved the autochthonous Maya—of the same stock as Huasteca and Quiché—and ruled as an alien theocracy in the Central American forests for nearly five hundred years. The subject race, from the sculptures seemingly a slight and undersized race having little resemblance to the tall, Cro-Magnon-like dominant caste, was probably, even at first, as numerically superior to its conquerors as the English to the Normans.

All the evidence leads to the conclusion that the dominant Xibalbans—like the Babylonians—were warriors only under pressure. Established in control of a highly-organized helot state, they may have abandoned arms entirely for those astronomical, religious, and mathematical passions to which their ruined cities bear witness. As a ruling, alien caste, their history may have paralleled very exactly that of the Aryan Brahmans in India, until freedmen, inevitable in a slave or serf state, gradually formed a third class in the Xibalban communities. An upwards infiltration of helot blood may have followed, till finally sharp distinctions of descent were lost and the ancient culture weakened. Even before the archaistic efflorescence there seems evidence of a mind, in some fashion semi-alien, influencing sculptural motif. A certain coldness and clumsy dignity has been lost. The technique is indeed maintained, but an eager, showy quality has entered both concept and execution. Absurd mistakes in the datings of inscriptions become frequent.

A state with a ruling caste and culture weakened, but still half-alien to the body of the serf populace, and subject to helot-risings: this may have been the Xibalba on which disasters descended from external sources and finally drove long drifts of refugees into Yucatan in confused hijra under the leadership of half-caste rulers.

No new theory or subtheory, however, can assume other than a questioning-explanatory attitude. Confirmation or refutation may

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come with the decipherment of the inscription texts. Even should these, as is probable, contain historical data, there seems little or no chance that any sculptor-scribe of the last sixty years of the Old Empire realized that he was living history and made record of the confusion around him, the fall or abandonment of neighbouring cities, the waves of anger and hope and terror that must have swept through the forested lands as the Maya civilization crashed to its fall. Nevertheless, there are remote possibilities that investigators in the country southwest of Bakhalal may yet unearth or uncover some such record—that, indeed, a cast of it may already repose, unread, in some American or European museum!

For it seems that even part-solution of the most fascinating problem in American history must be prefaced by still more intensive and organized study of the glyphic writing, elucidation one by one of each calculiform sign, and—a task hardly yet begun—codification and elaborate cross-referencing of those signs in a glyphic dictionary.

ILLUSTRATIONS

The accompanying plates illustrate the various phases of Maya art, its growth and decline:—

- I. The archaic phase.
- II. The formal phase.
- III. The crowning achievement of the naturalistic, and yet foreshadowing the flamboyance of the archaistic, phase.
- IV. From Palenque. The Northern naturalistic phase at its best. Probably individualized studies. An elaborate feather headdress is being presented to a priestly ruler, who is seated on a couch carved in the shape of a double-headed jaguar.
- V. The famous slab from the so-called Temple of the Sun, Palenque. Two priests are making offerings of figurines on either side of a spear-slung emblem of the Sun God. The right hand figure is the most perfect in Maya sculpture. Such portion of the glyphs as can be transliterated give a date approximating (in the Bowditch-Joyce chronology) to A.D. 114. The crouching grotesques (generally identified as 'mythological figures') are probably representations of the conquered Maya who may have been enslaved by a civilized, alien theocracy, as suggested in the text.

Grim's Ditch in Wychwood, Oxon.

by O. G. S. CRAWFORD

THERE are many Grim's ditches in the South of England; and there are other ditches of similar appearance and dimensions which, though not called by this name, may have had the same origin. Amongst them probably is Wansdyke, more correctly called Wansditch, and originally Woden's ditch. Locally these earthworks are now generally known as the Devil's ditch. I shall describe here the course of one such Grim's ditch, based upon field-work carried out during the spring and summer of this year, in the course of which I both walked and flew along the whole course of the various ditches mentioned and was able to add many miles to the portions previously known. They are as follows:—¹

- (1) The Wychwood Grim's ditch, North Oxfordshire, described below
- (2) The Aldworth Grim's ditch, Berkshire
- (3) The Mongewell Grim's ditch, South Oxfordshire
- (4) The Chiltern Grim's ditch, Buckinghamshire and Hertfordshire
- (5) The Pinner Grim's ditch, Middlesex.

Nothing absolutely certain is known of the age or purpose of any of these ditches, for, with a single exception no excavations have been made in any of them; and in the one case where this was done the results were inconclusive. Few nowadays, however, would regard any of these five Grim's ditches as prehistoric, and most would assign them either to the late Roman or the Early Saxon periods. They would thus fall somewhere within the extreme limits of A.D. 300 to 700, and more probably within the first part of this period. This view is partly based on the results of excavation of similar 'defensive frontiers'

¹ The Ridgeway Grim's ditch, running along the slope or brow of the escarpment of the Berkshire Downs, is of quite a different character from the rest and is probably prehistoric.

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such as Wansdyke and Bokerly dyke,² neither of which can have been constructed before the end of the 4th century A.D., and of the Cambridge-shire Bran ditch, which has recently been proved to be of Anglian origin.³ We know that both the Romano-Britons and the Anglo-Saxons employed this method of defence, and each instance must therefore be judged on its own merits. For topographical reasons it seems impossible to doubt that the Wychwood Grim's ditch was made by the Romano-Britons; and there is no reason to question the attribution of Offa's dyke to King Offa.⁴

Hitherto the Wychwood Grim's ditch has been the least known and least studied of all of them. It is mentioned in the perambulations of Wychwood Forest⁵ in the year 1300, and in a 17th century Parliamentary Survey.⁶ There are casual references to it by Plot⁷ and Aubrey;⁸ Plot's account is the fullest but it is very confused. Hearne walked along part of it; and obtained from a farm labourer, an 'elderly man' of Ditchley, the valuable information that it continued from there to Charlbury, Cornbury and Ramsden 'where it joins with the Akeman Street'.⁹ This is quite correct, and it is the only definite reference I have come across to the south-western portion, which I discovered independently before I had read Hearne's note. Of the later references Warton's¹⁰ is the fullest, but neither he nor Guest¹¹ and Akerman¹² understood the ditch or contributed much to our

² The name Bokerly dyke as applied to the intrenchment is of modern origin. It was called Grim's ditch by Aubrey in the 17th century and by Warton in the 18th.

³ Proc. Camb. Ant. Soc. 1929, xxx, 78-96.

⁴ The whole question of these dykes in general was dealt with by Dr Cyril Fox in *ANTIQUITY*, III, 135-54.

⁵ 'Et sic per medium Dustlesfelde usque Grimesdiche, et sic directe per dictum Grimesdiche inter boscum de Bloxham et boscum de Spelesbury'. P.R.O. Misc. Roll 113, Membr. 8, printed in *Archaeologia*, xxxvii, 435. Another version of the same perambulations, dated 1298, is printed and collated with the former in the *Cartulary of Eynsham*, edited by the Rev. H. E. Salter, 1908, vol. II, pp. 92-96. (Oxford Historical Society, vol. 51).

⁶ Field or ground called Ledwell Sartes adjoining to Rawlins Crosse and 'Grymesditch'. P.R.O. Land Revenue Miscellaneous Books, vol. 202, fol. 32b.

⁷ *Natural History of Oxfordshire*, 1677 edition, p. 321.

⁸ *Monumenta Britannica* (ms. in Bodleian Library, Oxford).

⁹ Hearne's *Collections*, vi, 187-8, sub anno 1718 (Ox. Hist. Soc., vol. 43).

¹⁰ *History of Kiddington*, by T. Warton, 2nd edition 1783, pp. 60, 61.

¹¹ *Origines Celticae*, by Edwin Guest, 1883, vol. II, p. 151.

¹² *Archaeologia* 1857, xxxvii, 424-440 (map).



FIG. 1. THE WYCHWOOD DISTRICT, SHOWING COURSE OF GRIM'S DITCH

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knowledge of its course. The only account of any real value is that of Colonel Lane Fox (better known as General Pitt-Rivers).¹³ He concluded, from his personal observations in April 1868, that the Wychwood Grim's ditch was 'not merely a boundary, but without doubt a fortification. . . . Other considerations are favourable to the view of its being a Roman earthwork. . . . It may have been thrown up by the Romans to defend a Roman settlement'. I had come to the same conclusion before I read the general's paper. That he regarded the native Britons as the enemy against whom protection was sought was a natural error to fall into sixty years ago. The important facts which he recognized were that it was primarily defensive and that it protected a group of Romano-British settlements. Neither of these facts can well be disputed. Finally, the account in the *Victoria County History*¹⁴ records for the first time a subsidiary entrenchment 'which formerly ran east and west at 100 yards north of Shilcott Wood, above Ditchley New Park and parallel with that section of Grim's ditch from Ditchley Park to the Model Farm. It has disappeared in the fields, but can still be traced where it crosses the old trackway which runs down the west side of the park, and which at this spot is a grass-grown lane'.¹⁵

When, therefore, I began to investigate Grim's ditch in Wychwood, the known portions consisted merely of a sector a mile and three quarters in length running through Ditchley Park (with the outlier just mentioned), and of two discontinuous fragments of a total length of a mile in the woods between Ditchley and Wootton. It was evident, as Hearne and others have stated, that the fragment in Blenheim Park (called 'intrenchment' on the Ordnance Map) was a southern continuation of it, but no one except Hearne's old countryman had suggested that any portion was to be found south of the river Evenlode. Half a mile south of the village of North Leigh, however, the Ordnance Map marks another 'intrenchment' running east and west for 700 yards. This fragment I succeeded in tracing eastwards and then northwards for a further distance of four miles, to the edge of Cornbury

¹³ *Journal of the Ethnological Society*, 1869, vol. 1, pp. 2-4 (read 1868).

¹⁴ *Oxfordshire*, 1907, II, 339.

¹⁵ This is the 'merewey' of the perambulations, and there can be little doubt that it was in use, probably as a main artery of native origin, during the Roman period. This would account for the making of an additional entrenchment across it, though here the work is outside the area, not inside it as are those on Callow Hill.

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Park. It thus proved to be part of that same continuation of Grim's ditch on Ramsden Heath referred to by Hearne. In this new sector there is only one break, of about two thirds of a mile, in Singe Wood and between it and Akeman Street, where old diggings have destroyed it. It is quite plain as far as Finstock Heath (6 inch Oxon, 25 NE) where it runs up to an ash-pollard and is then lost. There can be no reasonable doubt, however, that it went on to the Evenlode, though all my efforts to trace it further, both on the ground and in the air, have failed.

This northern portion was not at first connected with the already marked 'intrenchment' more than 3 miles distant to the southeast, which to begin with I assumed to be quite a separate work, unconnected with Grim's ditch. I discovered it quite accidentally, when looking for what I imagined to be something quite different. I had gone to Ramsden Heath to look for the remains of a certain 'hulwerk',¹⁸ last heard of many centuries ago. The name evidently meant 'hill-work', and the suffix implied that it was an earthwork of some kind. The hill on which it must have stood was easy to locate, being the highest in the immediate neighbourhood, 556 feet above sea-level. As I was bicycling along the road, in a field on the south side I saw the angle of an old bank and ditch protruding from a field-hedge. I thought at first that it would turn out to be a moated enclosure of medieval date; but on inspecting it I found that it continued more or less in a straight line in both directions from the angular point, connecting up eventually with the 'intrenchment' already marked on the map. Naturally the tracing out of this work took several days; and even when I had done all I could on the ground there still remained a gap of a mile, between Poffley End and Singe Wood, where all remains of it seemed lost. This gap was filled by observation from the air. Flying along it for this purpose, I observed a broad band of darker green corn crossing a field diagonally, and continuing (as a mark of some kind or other) to the western end of Spicer's Lane (6 inch sheet 26 sw). This was the point to which I had already got it, working westwards. I flew along

¹⁸ The name is variously spelt in the perambulations—Hulworke (1298), Hulwerke (1300), Hulwerk (1642). The last reference occurs as follows:—'*et sic per communem regiam viam in Ramsden Heath alias Hulwerk, ducentem a burgo de Woodstock*', etc. This suggests that the name had become almost or quite obsolete in the 17th century. Another reference to a 'Hulwerke' near Loueburyhurne in the 1298-1300 perambulations probably refers to the rectangular earthwork there, which I located and marked on the map.

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this sector on several different occasions and satisfied myself that what I saw was the authentic Grim's ditch. Then I went along it on the ground again. But there I could still see nothing, even though I now knew exactly where to walk. Even the broad green line in the corn was totally invisible from below.

Eastwards I failed to trace it both on the ground and from the air. There can, I think, be little doubt that it followed the direction of the modern road from North Leigh to Long Hanborough, perhaps coinciding for some distance with the parish boundary. There are, however, no visible remains anywhere, except perhaps at one point. In a square field northeast of Breakspear's Kilns (26 sw), which are next on the east to the inn called Shepherd's Hall, I noticed from the air a broad band running parallel to the Witney road at a distance of about 100 yards south of it. The field is under grass and was then laid up for hay: but, apart from an ancient field-division and a belt of ragwort in flower, I could see nothing on the ground. (This, as we saw above, proves nothing). There is one other possible clue. In the bounds of Eynsham, A.D. 1005, there is mentioned at about this point an 'old ditch' on a 'heath-field'.¹⁷ The parish boundary runs only a short distance to the south, and the old ditch may well have been Grim's ditch. I suspect that the ditch followed the course of the modern road as far as the Evenlode near Hanborough; but apart from an occasional 'bankiness' on the southern side near the Row, there are no signs of it, and even those mentioned are too slight to be considered seriously without further and more conclusive evidence. The ditch may have taken another course altogether.

The northern sector runs from the Evenlode at Charlbury to the Glyme between Wootton and Woodstock, but its course is curved, not straight. The only gap of any length is east of Charlbury where in medieval times the common fields of the town lay. It is well preserved in Ditchley Park, the best portion being along Love Walk, between the house and the Model Farm. Passing north of the house—it is lost on the lawn itself but visible on the west—it reappears beside the Kiddington drive which it crosses at an oblique angle. North of Outwood and Notoak it must have made a right angle turn southwards. Northwest of Slape Bridge it approached a promontory fort which has got confused with it; that is natural, for the continuation of Grim's ditch south of Slape Bottom is a direct prolongation of the line of its

¹⁷ Kemble, *Codex Diplomaticus*, III, 342.

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rampart, which is on the *east* side of the ditch and cannot therefore be part of Grim's ditch. It passes immediately behind (west of) Woodleys Farm, where there is a well-preserved fragment, and continues southwards into Blenheim Park. It enters the park 130 yards west of Ditchley Lodge and is well preserved in the plantation bordering the park, just inside the park wall. It can be followed across a ploughed field by means of a stony belt, on the west of which Romano-British potsherds are abundant. Then it passes immediately east of North Lodge and joins up with the 'intrenchment' already marked on the map. This intrenchment makes a sharp turn eastwards *exactly* at the point where it crosses the Roman road, Akeman Street; it was here that the late Professor Haverfield excavated it.¹⁸ The ground here has been much disturbed, so that excavation might be expected to prove inconclusive unless carried out with a finesse that was almost unknown in those days; otherwise it might even prove misleading with regard to the relative ages of bank and ditch. In any case it was inconclusive and had better be forgotten.¹⁹ Apart from anything else, the sharp bend strongly suggests that the Roman road was already there when the ditch was made. South of the Roman road is the best preserved sector of all; here it has never been disturbed, and the top of the bank is about seven feet above the bottom of the ditch.

Immediately north of the Roman road are some pits which were excavated by Professor Haverfield and found to contain Romano-British pottery; they were probably the site of huts.

The visible portion of Grim's ditch ends abruptly in arable land south of Furze Platt Farm; but outside the park, in the fields north-west of Field Barn, a dark line in the corn can be seen from the air extending from the Chipping Norton road to the Glyme at Stratford bridge. On the ground there are no signs of anything but a hump in the cart-track from the barn to the road. It seems that the ditch ended at Stratford bridge. The peculiar course followed here may have been designed so as to outflank an enemy approaching from the east along Akeman Street. Having crossed the river, he would thus be exposed to attack from both front and rear by a force lying in wait behind the ditch.

Grim's ditch, then, encloses, or nearly encloses, an area; and

¹⁸ *Proc. Soc. Ant. London*, 1899, xvii, 333-5.

¹⁹ Excavations to determine the age of Grim's ditch and its subsidiary defences are badly needed. Callow Hill is the place to dig. Will not someone do it?

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this is a unique feature. Starting probably somewhere in the neighbourhood of Long Hanborough, it proceeds southwestwards, then bends round by Hailey and takes a northerly course to Cornbury Park, crosses the Evenlode and runs northeastwards through Ditchley Park, then bends round southeastwards to Blenheim Park, and then turns northeastwards to the Glyme. It faces outwards, having the ditch always on the outside of the bank; and it was presumably intended to protect those who lived within it.

Now within this area of about 22 square miles are no less than five Roman villas and half a dozen or more sites where Roman remains have been found.²⁰ But the most interesting and important site in the district is Callow Hill. It has long been vaguely known, and has often been described as a villa, though without adequate reason. It may have been a villa; but it was more than merely that. The visible remains lie within a large rectangular earthwork about 220 yards long from east to west and 140 yards broad. The principal object is a low broad mound in the northeast corner, probably the remains of a building. Romano-British pottery is abundant within the enclosed area. From the air many marks can also be seen in the field beyond the lane on the west. The most important objects, however, for our present purpose are two defensive banks with ditches, which run from north to south across the ridge, east of the site of the building. (One is already marked on the map; the other I discovered myself). The northern ends of both ditches rest on the rivulet in Slape Bottom where they terminate. Southwards they end abruptly in ploughed land north of Wootton Wood. (That they actually do end here is fairly obvious on the ground, and is confirmed by air-observation). They face eastwards and bar access to the Roman site from the east. Thus they reinforce Grim's ditch, which they resemble in size and character. Presuming that in Roman times there was a native track or ridgeway leading from here into the Cotswolds, these barriers would effectively check the progress along it of an invader who might have been held up in his attempt to enter the region by way of Akeman Street. He would be caught between these ramparts and the valleys of the Glyme and Slape.

²⁰ The site of a Roman tile-kiln 'in the valley between Stonesfield and North Leigh, not half a mile from the course of Akeman Street' is not marked on the map (fig. 1) because the foregoing is the only account of it, and the description is too vague to plot. (Warton, *Kiddington*, 1783, p. 59). A bibliography of these and other Oxfordshire sites, compiled from the Percy Manning MSS. at the Ashmolean, was published by Mr E. Thurlow Leeds in *Archaeologia*, LXXI, 227-64.

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The square enclosure may have been constructed in late Roman times to defend a house already in existence there. Such fortified houses are already known in the west (at Ely, near Cardiff) and in the north (at Castle Dykes, near Ripon, and at Langton, near Malton). It is generally supposed that they were fortified against marauding bands of Picts and Scots. But it seems just possible that the whole area enclosed by Grim's ditch may have been put in a state of defence on the lines of an organized scheme. There is evidence of other rectangular enclosures along its margin; and though in no instance except on Callow Hill is the evidence at all conclusive, there is enough to justify further investigation. The sites are as follows:—

(1) Notoak, east of Out Wood. Here I was informed by the farmer that he had found many Roman coins (one of silver), and the discovery of Roman coins in or about 1863 is recorded on the Ordnance Map (Oxon. 21SW). From the air I noticed a rectangular enclosure here.

(2) The Model Farm, Ditchley. The former existence of a rectangular enclosure here is vouched for by the Ordnance Survey (one inch map, 1833) and by Akerman, who, however, does not mention it in his article (*Archaeologia*, 1857, xxxvii, map). I cannot find any reference at all to it, or to its destruction, presumably when the Model Farm was built.

(3) Cornbury. There still exists a small square earthwork on the southwest bank of the Evenlode, immediately opposite the end of Grim's ditch on the north bank. It is however much smaller than the preceding two.

(4) On a high hill about midway between Finstock and Cornbury House, are the remains of some sort of ancient enclosure. I noticed them first on the ground, where a squarish area is surrounded by a low broad stony bank, much spread by cultivation. There are however no signs of a ditch and no potsherds lying about. From the air the shape appears less square, and seems to be irregular.

I state these facts not to support any hypothesis but to clear the ground for further investigation which is badly needed here.

The Stonesfield area was important in Roman times for several reasons.

It was probably one of the places where roof-tiles were quarried to supply the numerous villas of the region. It is certain that at Stonesfield itself there was a flourishing industry in slate-making throughout medieval times; indeed it has only recently become extinct. All round the village are spoil-tips of Stonesfield slate, and it is said that the workings extend far underground. In Roman times too, therefore,

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there may have been some industrial activity here, and a slight concentration of population in consequence of it.

Another reason is geographical. If we look at the Ordnance Survey map of Roman Britain (2nd edition)²¹ we shall see that, in this part of England, there are two areas where Roman remains, principally villas, are most abundant. One is the Cotswolds proper, round the market-town of Corinium (Cirencester); the other is North Oxfordshire, and extending northeastwards into Northamptonshire and southwards down the Thames Valley to Dorchester. Its market-towns were Alchester in the north and Dorchester in the south. These two regions were nearly but not quite separated from each other by a tongue of forest-land projecting southwards down the Evenlode Valley. This tongue comes from the great midland forest. It nearly meets the forest of the Upper Thames valley but just fails to effect a junction. A natural 'pass' is left, through which goes Akeman Street, uniting the two populous districts. Through this bottle-neck must have gone in Roman times nearly all the traffic between the settlements round Ircchester, Castor (Durobrivae) and in Lincolnshire in the northeast, and the Cotswolds and Somersetshire in the southwest. Apart from the Foss Way whose course was for some distance laid out through uninhabited forests and which may have fallen early into disuse, there was only one other line of communication open and that was along the Rollright ridgeway. An ancient trackway of prehistoric origin led from Somersetshire across the Avon at or near Bath by Minchinhampton, Syreford, Stow-on-the-Wold and Banbury to Northampton and doubtless beyond. It is thickly set with prehistoric remains, especially of the Iron Age. It crossed the tongue of forest at Adlestrop where that tongue narrows almost to vanishing point. Strangely enough there are no cross-ridge dykes anywhere along it. Perhaps the construction of Akeman Street diverted the traffic. That in later times it was once more the main route from the Cotswolds to Northampton is proved by a curious and interesting reference in a medieval document.²²

²¹ On the second edition areas of natural woodland have been restored upon a geological basis. Fig. 2 is based upon this map.

²² It occurs at a point near Adlestrop: 'ad regiam stratam de Norhampton'. The same document describes the hill as 'montem Susibre', a plainly Celtic word representing some such form as *Susobriga. The document was printed by Kemble in *Codex Diplomaticus*, vol. VI, no. 1367 from B.M. Cotton mss. Vesp. B. xxiv, fol. 63. Dr Grundy, who made the identifications quoted above, regards the charter as probably of not much later date than 1066 (Saxon Charters of Worcestershire, *Trans. Birmingham Arch. Soc.* 1929, vol. LII, pp. 12, 73).

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The Pass of Wychwood, as it may be called, is situated between Charlbury and Bladon, a village one mile south of Woodstock. More precisely it lies between Fawler and Bladon bridge, now called Hanborough bridge. It is not, of course, a pass in the usual sense of the term, but the word must do, for lack of a better. It is a passage-way or corridor over a belt of open, unwooded country, bounded by forested claylands on either side. It is a limestone tract consisting

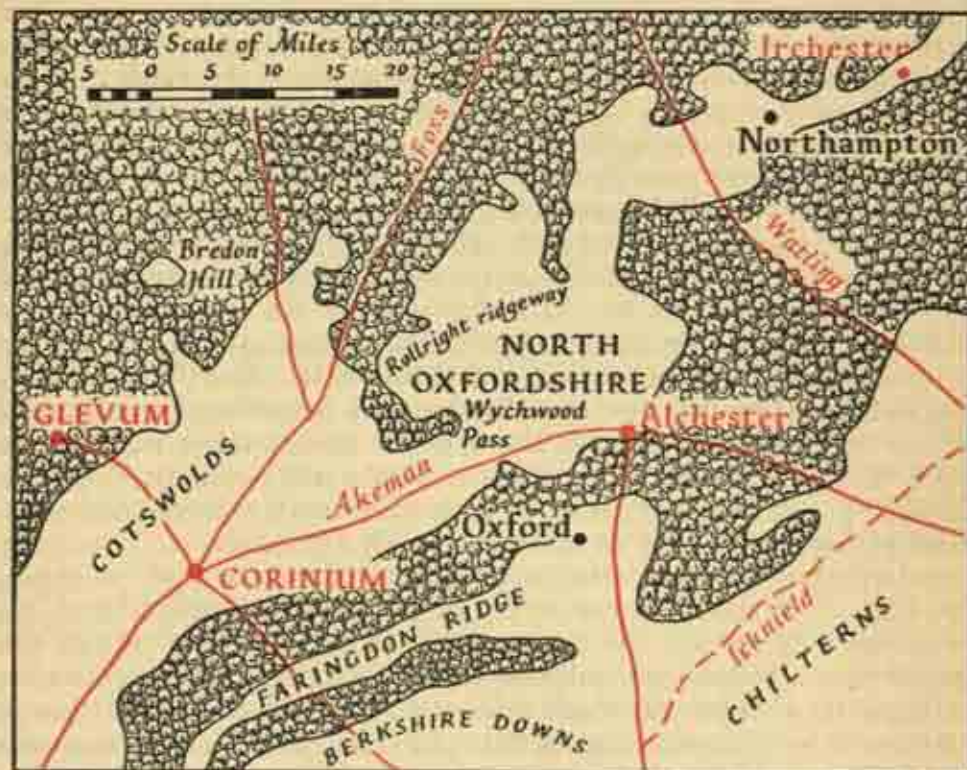


FIG. 2. FOREST GRASS-LANDS IN ROMAN TIMES

geologically of the Great (or Upper) Oolite formation. Its natural vegetation would have been grass and light scrub with occasional trees in open formation without undergrowth. It could never have been densely wooded, and the surface must always have been hard and dry. It was easy country to travel over in primitive times, and must have provided good hunting, good grazing or good arable land, according to the needs of its inhabitants. Not far below the oolite limestones lie the lias clays which come to the surface in Worcestershire and the

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midlands. Here the great virgin forest already referred to stretched almost unbroken throughout prehistoric and Roman times (fig. 2). The river Evenlode has eroded the overlying limestone, however, and exposed these lias clays to the surface deep into the heart of the oolite region itself; so that a tongue of liassic clay-forest intruded up to a point just southeast of Charlbury.

Now it will be obvious that, quite apart from the trees, a valley whose sides are of heavy clay is very much more difficult for travellers to negotiate than one whose sides are of hard, dry limestone. Pre-historic tracks will be found to have chosen the limestone portion for their valley-crossing; and even Akeman Street has not been too proud to follow in their footsteps. To be accurate, the exposure of the lias clays narrows southeastwards to a point in the Evenlode valley 3 miles below Charlbury station, and stops at a 'fault' at Ashford Mill, where Akeman Street crosses the valley. From there to Bladon bridge, a distance of $3\frac{1}{2}$ miles in a straight line, the valley sides are formed of oolitic limestone. Below Bladon bridge the river enters a region of Oxford clay, the formation lying next above the Oolite. Actually the band of lias exposed southeast of Charlbury is so narrow that a good crossing could be found almost anywhere between that place and Bladon bridge; but the upper or northwestern reach is the more accessible, for between Akeman Street and the village of Bladon the approach to the valley is masked on the north by an outlying sheet of Oxford clay, covering the Combe plateau. (Fig. 1).

Thus we see that, both tactically and strategically so to speak, the Pass of Wychwood was most important. Tactically it was the best place to cross the Evenlode valley, because there only (with the exception of the Rollright ridgeway) could it be negotiated with undue discomfort. Strategically the Pass was a narrow strip of open downland, constricted between two large forests and uniting two large and populous regions. There was every reason, therefore, to expect that, in time of stress, it would be traversed by wandering bands of raiders. Towards the end of the 4th century we know that raiding parties of Picts and Scots penetrated far south into the heart of civilized Britain, and pillaged and destroyed its country houses or 'villas'. If any such survived into the next century they would have been exposed to similar attacks from the Saxons. A party which had devastated the prosperous Romano-British settlements of North Oxfordshire and Northamptonshire would inevitably gravitate towards the Pass of Wychwood on their way to another rich looting ground in the Cotswolds.

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Protective measures would surely have been taken ; and the normal procedure of those times was to make just such a defensive frontier as our Grim's ditch. The Britons may have learnt this custom from the Romans, from the example of Hadrian's Wall and the Scottish Wall, whose early name, Graeme's dyke, by the way, is said to be a northern variant of Grim's ditch. The Saxons, however, invented it independently, for Tacitus tells us²³ that the Angrivarii, who lived in the modern province of Hanover on the middle Weser, employed it against Caesar. How the defence of these British dykes was conducted we do not know, nor whether it met with any measure of success. All we do know is that most Roman villas came to a sudden and violent end about A.D. 370. The country was resettled by the Saxons²⁴ and their more peaceable descendants forgot to record those early struggles. They called these ramparts after Grim and Woden, and we infer from this that they knew nothing of their origin and purpose. They left to us the fascinating task of unravelling the mystery.

²³ Tacitus, *Annales*, book II, chapter 19. *Postremo deligunt locum, flumine et sylvis clausum, arcta intus planitie et humida : sylvas quoque profunda palus ambibat, nisi quod latus unum Angrivarii lato aggere extulerant, quo a Cheruscis dirimerentur : hic pedes astitit : equitem propinquis lucis texere, ut ingressis sylvam legionibus a tergo foret.* Compare also the *Limes Saxoniae*, an account of which was reviewed in *ANTIQUITY*, II, 125-6.

²⁴ Two pagan Saxon cemeteries have recently been found in the Wychwood district, one inside Grim's ditch and one just outside. I am indebted to Mr. E. T. Leeds, V.-P.S.A., Keeper of the Ashmolean Museum, for this information.

The First Monasteries

by E. H. SAWYER

IN the 'Era of Martyrs' at the end of the third century the persecuted Copts, the Christians of Egypt, suffered death or fled into the desert; but they found life possible only where there was water. The most favourable of these few oases was Nitria, today called 'Wadi Natrun' or Valley of Soda, a shallow depression of twenty-two miles by five in the Libyan desert surface. It is situated a camel journey of a day and a half along the ancient track which leaves the Delta near Terenthus, the modern El Tarrana. In it there are eight small lakes, some of whose waters contain soda, others salt. They lie about seventy-five feet below sea-level and are fed not by the Nile, but, as Dr Ball has recently shown, by desert subsoil water flowing from the southwest. Wells dug in their vicinity yield water, brackish but drinkable, and on the shore of one was the town of Nitriotis, the habitation of the soda-workers and glass-blowers, existing since ancient Egyptian times. Now the desert is crossed by a light railway, run by a company that exploits the salt and sodium carbonate.

This depression of 'Wadi Natrun' was the cradle of Christian monasticism. An ineffectual attempt had been made by Saint Frontonius in A.D. 151 to establish there a brotherhood of hermits living in cells under an abbot; but the protagonist of the movement which later controlled Europe was Saint Ammon. As a young man he retreated into the desert of Nitria about A.D. 265 and was soon joined by disciples. From that day to this Christian monks have dwelt there. Owing to the extraordinary health-giving properties of the desert he lived to be a hundred, dying in 346. Saint Antony, the most famous of his followers, died at the age of 105. Other disciples of Saint Ammon were Makarius the Egyptian or the Elder, and Makarius the Alexandrian, the Camel-Driver, homonymous contemporaries, the many legends about whom it is no longer always possible to ascribe to the one or the other. The former founded the monastery which is the most interesting of those still extant. By the end of the fourth century Nitria had become so renowned that pilgrims male and female came

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to it from all parts of the Christian world and many stayed to partake of the ascetic life.

The slopes of the Wadi are so gentle that there are no cliffs and hence no possibility of a natural or artificial cave, favourite dwelling-place of the hermit. To build his cell he had to quarry rocks from outcrops with a pickaxe and a spade, making the roof with a pile of rushes which are plentiful on the lake edges, a sufficient protection as rainfall is rare. The building took him about a year. The cells were mostly of one apartment, some of two; a wooden door with a lock was usually fitted. Almost invariably the hermit lived by himself, occasionally entertaining a visitor in search of a 'word' of wisdom. Most of the time he spent in prayer and contemplation, in mortifying the flesh or fighting the devil—a very real devil who was wont to materialize in human or animal form. But the hermit also worked for his living; his scanty wants of bread, vegetables, onions, dates and honey he supplied by handicraft. The most common occupation was the weaving of mats and baskets from rushes gathered by the lakes. These he sold at the town of Nitriotis to which traders from Alexandria came with provisions, and at Scetis, a town which later grew up on the southern side in the desert of Scete, from which name, owing to the life led by the hermits, is popularly but erroneously derived the word 'ascetic'. Some spun and wove linen; many supplied the needs of the others, being bakers and confectioners. Some acted as physicians and surgeons to the rest. A large number went down to the Delta every year to work in the harvesting.

Gradually a number of cells forming a 'Laura' grouped themselves together round that of a particularly holy man, who became the leader or abbot, and a church was built. Later on, for safety's sake, a high wall was erected round the cells. But to this day the Coptic monasticism differs from its European derivative in that each monk lives by himself in his little house and prepares his own frugal meals. He meets the others daily in the church; and only on feast days after the service is the communal refectory used to eat in. With the continual arrival of neophytes the number of monasteries rapidly grew. Gibbon states that there were 50, the present-day monks speak of 365. The western side of the Wadi is strewn for miles with their ruins; but only four have survived. Rufinus aptly describes the holy hermits as 'athletes of God'. They were in continuous rivalry to perform feats of self-mortification, in which each strove to hold the record. One fasted absolutely for four days, a second did it for five, a third for

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seven. One ate only vegetables, a second ate them only after soaking them in cold water, a third ate them raw, and a fourth went and lived on grass.¹

Architecturally most interest in the monasteries focuses on the churches; with the exception of underground crypts they are the oldest existing Christian places of worship, and date from the fourth century. Everything in the Nile Valley was destroyed by later invasions, from which their remoteness saved these desert fanes. Not only are they the oldest standing, but they must be among the oldest churches built. Christianity was first practised in the house, then a 'domus dei' was set aside for religious purposes; church building cannot have begun before the time of Constantine (A.D. 325), when persecution ended and the faith gained its freedom.

The pre-Christian domestic style was the model for the first churches, as preserved in early Coptic architecture. We know that the 'alae' of the 'atrium' in a Roman house gave the idea for transepts, but Egyptian houses were different, hence the Coptic churches have no transepts. Style has always been influenced by material and, owing to the scarcity of wood, domestic buildings in Egypt have from the earliest times had brick ceilings domed or of continuous vaulting—a characteristic of these early churches. In them also the sanctuary is divided from the choir, the choir from the nave, by pointed arches. Islam brought no style of its own, houses were designed and built by Christian architects for their Moslem conquerors, and no doubt preserve much of the old form. Hence the 'kaa' or hall of an arab house—for example that of the Bookbinder in Cairo—with its pointed arches and general shape much resembles the interior of a Coptic church. In the Mosque of Ibn Tulun,² also in Cairo, which was completed 200 years after the Moslem conquest, we have the earliest instance of a colonnade of pointed arches, and are expressly told that it was designed by a Christian. The pointed arch was introduced to Europe from Syria and Egypt as a result of the Crusades, the first example in England, Bishop Walkelin's transepts at Winchester cathedral, dating some two centuries after the Mosque of Ibn Tulun. In Egypt the early type of Coptic church served as a model for many centuries, in fact until the time of Kyrillos IV. All church exteriors were originally plain walls unadorned, and this too Egypt has maintained.

¹ Rufinus, *Historia Eremitica*, and Palladius, *The Paradise of the Holy Fathers*.

² See ANTIQUITY, III, 468-9.

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Of all the monasteries that once existed, there are, as has been said, only four remaining in the Wadi Natrun. They follow a general plan of construction, so that the description of one will serve for all. (Plate 1). An illimitable waste of undulating sand hills lightly covered with gravel or rocks, out of which rises a bare wall some 500 feet long by 50 high. Not a sign of life as you approach; having come over many miles of sterile sun-scorched desert, your conviction is confirmed that no human beings could exist in so desolate a spot. You see a tiny iron-studded door, beside it a rope swinging from a bell at the top of the wall. You toll the bell. Five, ten, fifteen minutes pass, and high above you over the wall appears the head of a monk, who demands your business. On seeing visitors, he quickly disappears and you hear noises from inside, a hunt for the monk in charge of the postern or of the wooden key which he has mislaid. Finally it opens, and a number of monks emerge welcoming you effusively; hospitality to the traveller is one of the chief rules of their order and you will be entertained for as long as you are inclined, and not allowed to pay on departure. A part of the monastic endowment is set aside for this. Not only does the monastery entertain pilgrims, but it extends charity to the stranger and traveller in the desert, irrespective of race or religion. Every few hours the outer bell is rung by Arabs wandering on foot or camping in the neighbourhood. A monk ascends the wall, questions them as to their names and tribe, and presents them with a pound or two of flour and some dried dates let down to them in a basket on a cord. This maintains a spirit of friendliness between the monks and the Beduin of the neighbourhood, whose interest it is to behave well. Any object lost in the desert in a large radius will be brought by them to the monastery.

You present your credentials, a letter from the Patriarch, and enter the monastery. The moment you are inside, the gate is again barred and locked. All these precautions are part of the immemorial custom which has kept the monasteries unharmed in days of disorder. Today the security is perfect, but even in the Great War this desert was none too safe. Outside the entrance you may have noticed an enormous granite mill-stone. In case of alarm this was rolled across the door and the monks were pulled up the outside of the wall by rope and pulley. Until recently some of the Coptic monasteries had no outer gate at all; the only method of ingress for persons, animals and supplies was by rope and windlass to the top of the wall. This top has a parapet on the outer side only, and from it the monks could defend themselves

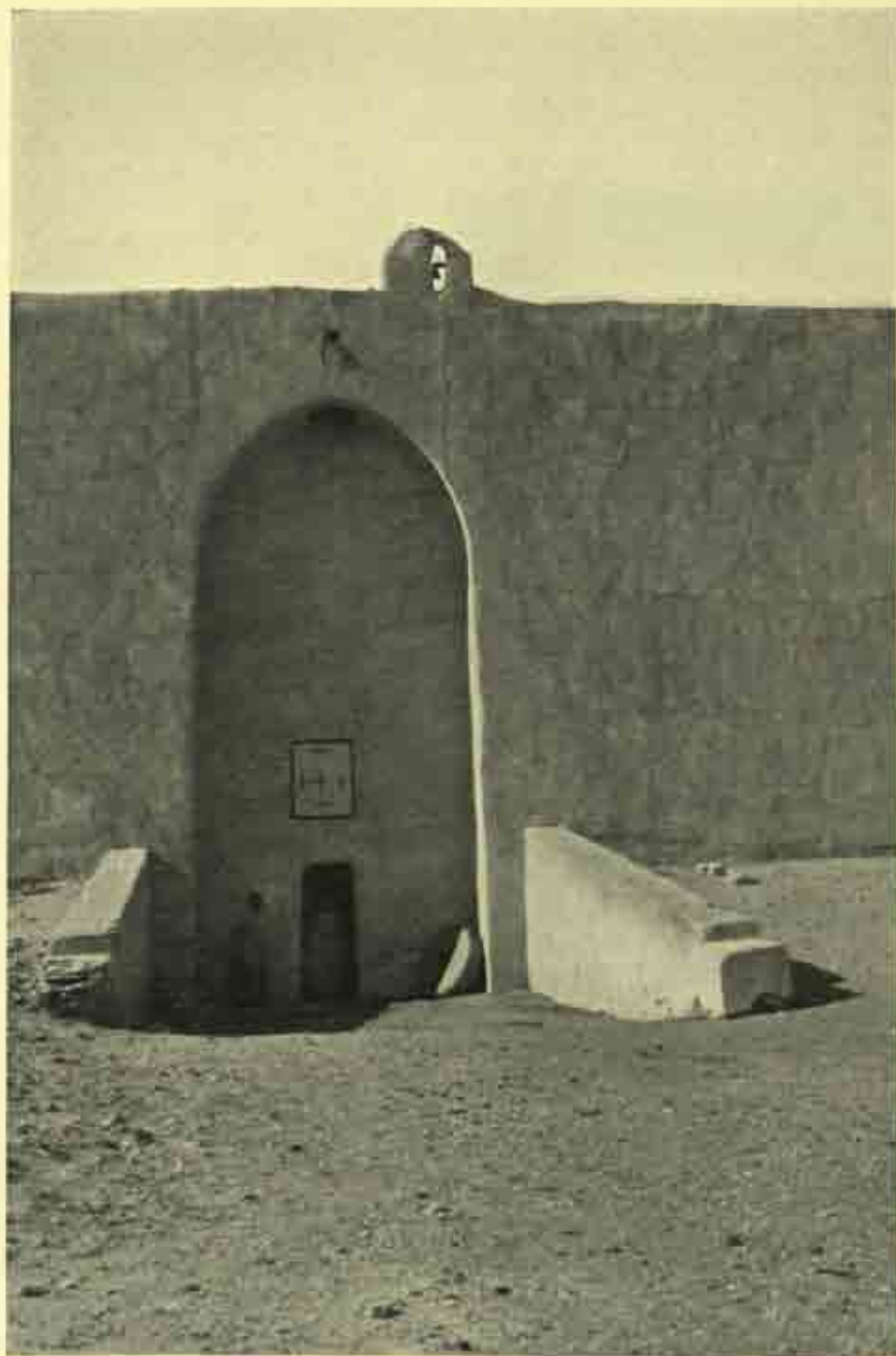
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by hurling down rocks on Beduin besiegers armed with bows and arrows. The parapet forms a dizzy promenade from which to overlook the monastery. (Plate II).

Inside the walls in an area of from five to eight acres there is a regular little village, with a dwelling-house generally of a lower and an upper room for each monk, who lives alone, sleeps on a mat and prepares his own food. There are three or four chapels, a larger one used in summer and a smaller in winter. A belfry, usually unattached to any church building, summons the monks to prayer at various hours from before dawn to after dark. Here are the only church bells of the Copts, as in all their history they have had to avoid notice in the towns. There is a guest-house, nowadays quite modernly furnished, containing a sitting-room, several bedrooms and a kitchen with a complete canteen, for the use of clerical functionaries and other visitors. There is a refectory with stone table and benches used by the monks on feast days only; a bakery in which bread is made twice a week; store-rooms for the supplies of grain, onions, dried dates and olives, salt, etc., doled out to the monks; a mill of enormous granite stones for flour and olive-oil; kilns for making lime from the abundant limestone and charcoal from the desert brushwood. The water of the monastery well is often so brackish that it can only be used by means of a 'sakkia' (water-wheel), to irrigate a small patch of vegetable garden, drinking water having to be brought from a well at some distance. Outhouses contain a few goats and sheep that provide fresh meat at festivals or for guests, a donkey or two, a 'gamus', buffalo to work the mill and water-wheel, and some chickens. But the most striking feature of the interior is always the 'kasr', the donjon-tower, a tall isolated square building, whose only entrance is by a draw-bridge and small door on the first floor. Should the rest of the monastery have been captured, it afforded a final place of retreat for the monks. Its interior is a small replica of the monastery: store-rooms on the ground floor, living-rooms and chapels in the upper storeys—one always dedicated to Saint Michael as being nearer heaven and the angels—the library and treasury, and the flat roof overlooking the walls and desert.

A monastery has from twenty to fifty inhabitants, according to its size and wealth. It is ruled by an abbot who is however not always in residence. The larger monasteries may besides have one or two honorary abbots. Several of the chief monks are ordained priests and officiate at the Communion and other services. The monks are assigned

PLATE I



ENTRANCE TO THE MONASTERY OF DAIR ABU MAKAR

Ph. E. H. Sawyer

PLATE II

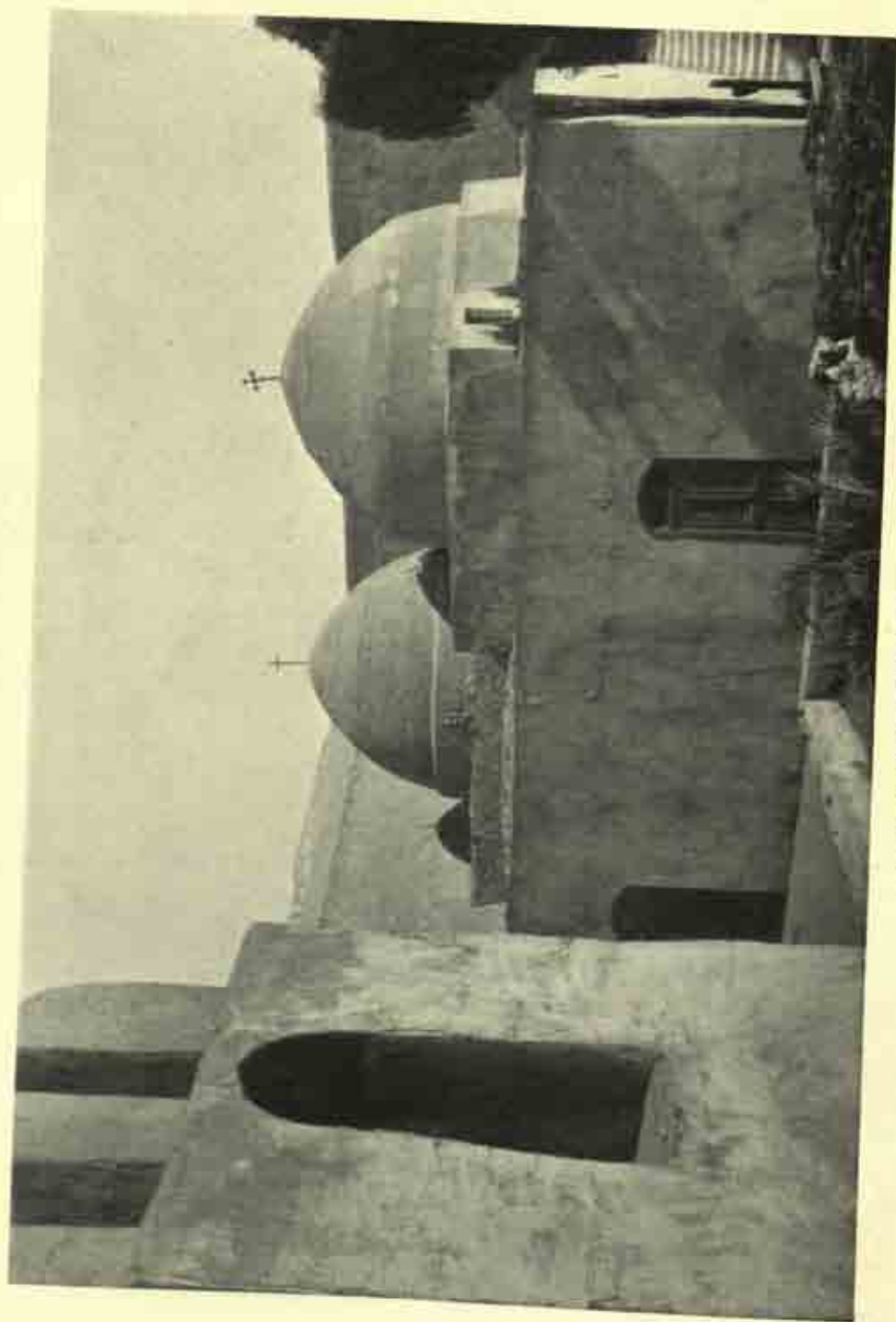


INSIDE THE MONASTERY OF DAIR ABU MAKAR: IN THE CENTRE THE CHURCH
OF THE SHEIKHS, THE BELFRY TO THE LEFT
P. E. H. Sawyer

PLATE III

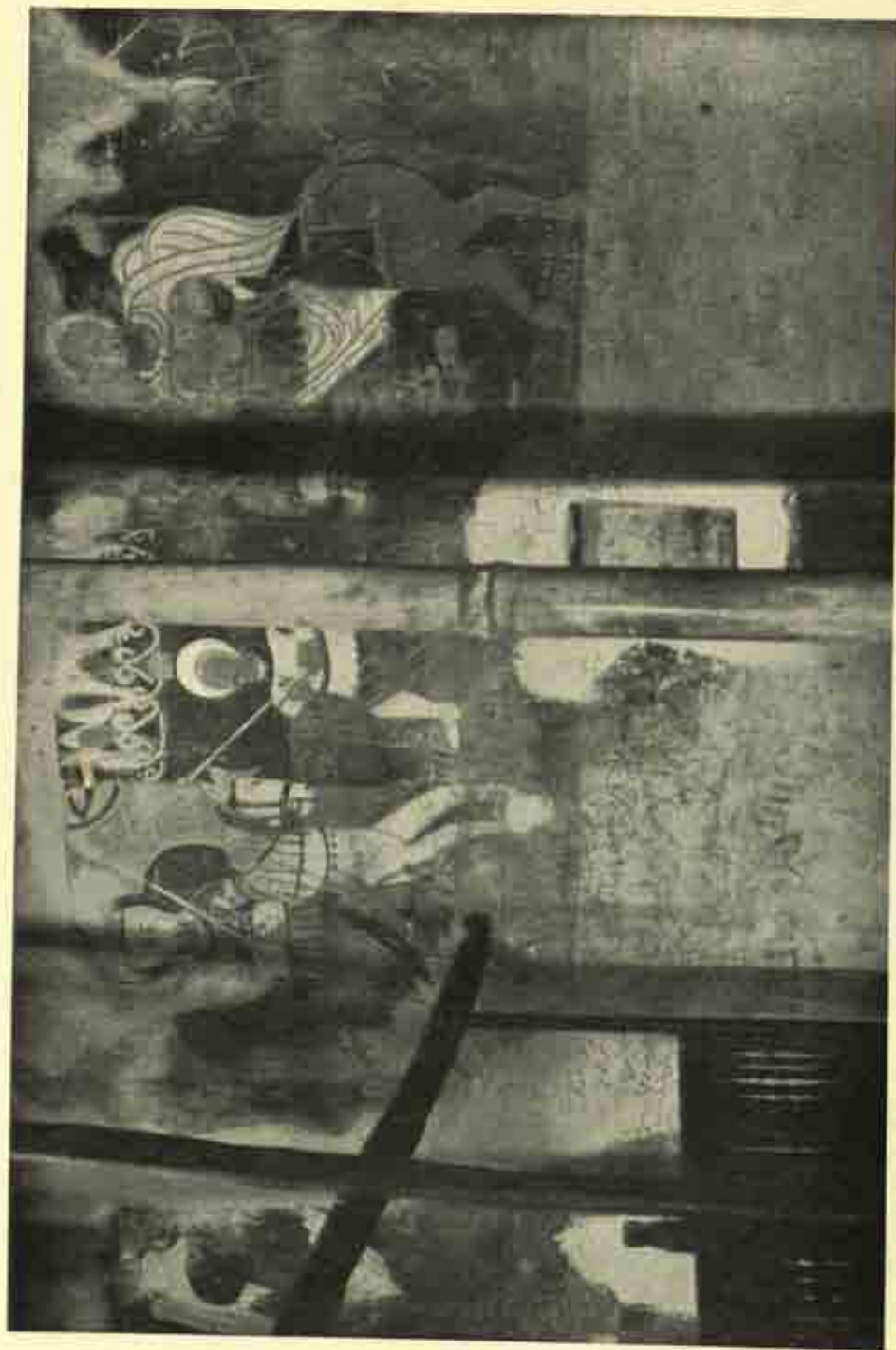


GENERAL VIEW OF THE MONASTERY OF DAIR ABU MAKAR, FROM THE WALL.
AT THE BACK THE SQUARE DONJON-TOWER; GUEST HOUSE LEFT CENTRE; TO THE RIGHT THE CHURCH OF ABU ISKARUN.
Ph. E. H. Sawyer



THE CHURCH OF ST. MAKARIUS THE EGYPTIAN
Ph. E. H. Sawyer

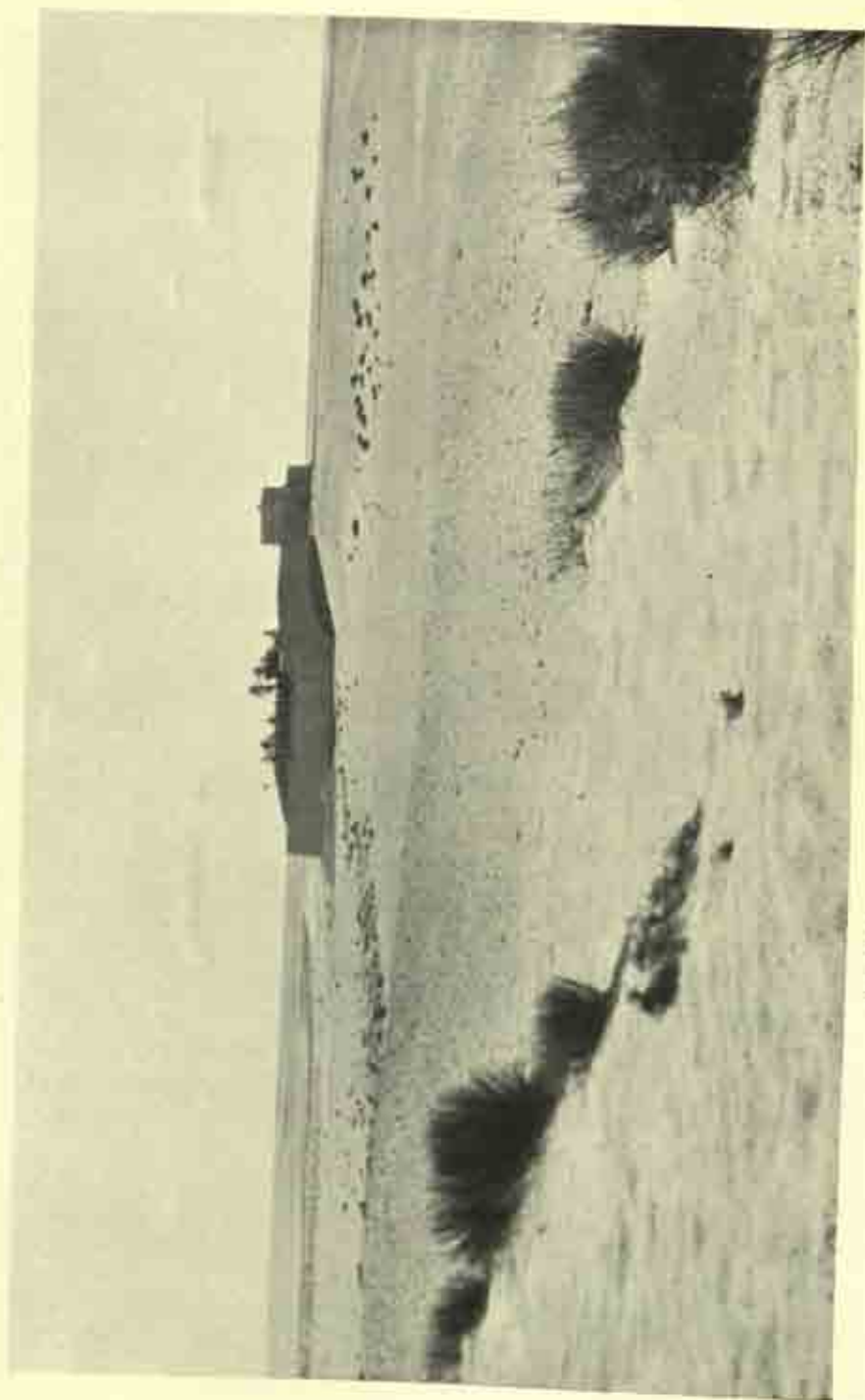
PLATE V



FREScoes IN THE CHAPEL OF ST. MICHAEL: IN THE CENTRE ST. MAKARIUS ON HORSEBACK, ON THE
RIGHT THE EMPEROR JUSTINIAN, ON THE LEFT THE EMPEROR WASSILIDES

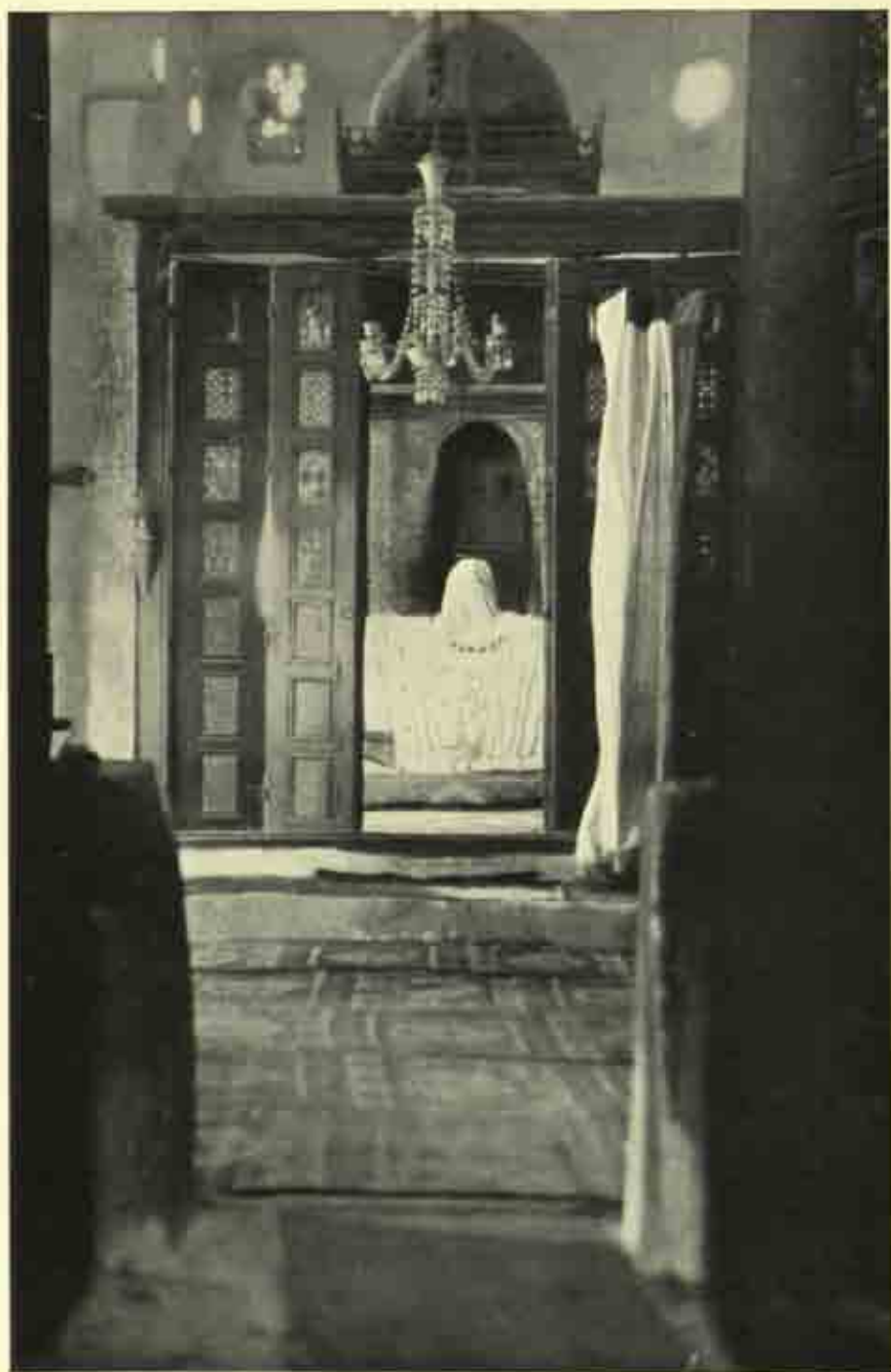
Ph. L. H. Sawyer

PLATE VI



THE MONASTERY OF DAIR EL SURIANI, FROM A MILE AWAY
PH. E. H. SWEYER

PLATE VII



THE CHURCH OF THE VIRGIN, DAIR EL SURIANI: CHOIR AND SANCTUARY
SEEN FROM THE NAVE

Pl. E. H. Sawyer

PLATE VIII



THE REFECTORY OF THE MONASTERY OF DAIR BARAMUS
PA. E. H. Sawyer

THE FIRST MONASTERIES

various duties for longer or shorter periods: one bakes the ordinary and the Eucharistic bread, another tolls the bell, one is in charge of the outer gate, another looks after visitors, and so on. The rougher tasks, such as water-carrying, are performed by novices and lay workers, of whom there are always a few. Each monastery supports itself on property which it has received from pious bequests, possessing in the Nile valley houses and cultivated land managed by the abbot. There it also has a base from which it receives supplies every few months by camel caravan. Abbot, monks and novices are appointed and transferred by the Patriarch, the head of the Coptic Church. The old and infirm are usually sent to monasteries in the Nile valley, and every few years a monk is given several months leave to visit his relations.

The most southerly, most inaccessible but most interesting of the four monastic establishments is the Dair Abu Makar, or monastery of Saint Makarius, founded by Makarius the Egyptian or the Great. He was born in Upper Egypt about A.D. 300, came to Nitria at the age of thirty and built a cell in the desert of Scete, where he was joined by two disciples. After his ordination as priest in 340 many disciples flocked to him, and the foundations of the present monastery were laid. For his opposition to Aryanism he was banished in his old age by the Emperor Valens to the island of Philae in Upper Egypt, but after several years allowed to return to Scete where he died at the age of ninety. By later writers he is often confused with Makarius the Alexandrian, whose love of creatures was so great that for having killed a mosquito he imposed on himself the penance of spending nine months naked in the marshes. A third famous Makarius, 'Abu Makar el Saidi', the Upper Egyptian, was a disciple of Saint Antony.

The monastery of Saint Makarius has played a leading part in the history of the Coptic Church. For centuries without interruption, and frequently up to the present day, the Patriarch has been chosen from among its monks. In 1216 the monastic treasure was betrayed to the Moslem authorities by a renegade monk. At the approach of the troops the treasure, together with the chalice, the paten and the sanctuary veil, was concealed inside the well, but after a rigorous search they were found and taken away. In 1228 the Sultan Melek el Kamel paid a visit to the still famous religious establishments of the Wadi Natrun and was a guest at Saint Makarius. In this monastery (plates I-IV) the largest church, dedicated to the founder, has two circular brick domes, architecturally the finest examples preserved, clearly showing the origin of the later stone mosque-dome. The ancient

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woodwork of the interior was unfortunately removed to the museum at Old Cairo.² More interesting is the 'keneeset el Sheeukh', the church of the Sheikhs or Elders; inside it, in a shrine covered with a pall, are preserved the mummies of the three Makariuses, objects of special veneration. In their day embalming was still customary among the pagans, but Saint Antony inveighed against it as a heathen practice; in any case the dry germ-free desert air would preserve a body without much preparation. In it too are buried forty-nine saints who were martyred outside the gate of the monastery in 1070. Their number was swelled by a fiftieth, a boy who, when he had seen the monks slain, cried, 'I too am a Christian'. The church of Abu Iskharun, basilican in shape, is another architectural gem. The nave and choir are under one brick vault with domed ends. On looking up from below it seems incredible that the vault should maintain itself without any other support than its own weight.

On the second floor of the 'kasr', are several chapels: the one dedicated to Saint Michael contains some very old woodwork, fine frescoes of the seventh century (plate v), and in a wooden chest the mummies of a number of the abbots dating from the tenth century. In two other chapels there are frescoes, one of 'Abu Nafr el Saih', obviously representing Saint Makarius the Alexandrian, clad only in his beard before he went into the marshes. The top of the tower looks out over the walls on an undulating desolation of sand. Close to Abu Makar on the west are the ruins of three other monasteries; and half a mile to the northeast lie the scanty remains of the town formerly known as Scetis, later as Abu Nafr.

Eight miles away to the west stand two other still inhabited monasteries, within a mile of each other, Dair el Suriani and Dair Anba Bishoi. These, being five miles to the south across the lakes from the site of Nitriotis, where the station of the light railway now is, are the most frequently visited and best known. The Dair el Suriani, or monastery of the Syrian (plate vi), said to resemble Noah's ark in shape, was founded by Saint John the Syrian, traditionally at the beginning of the fifth century. His most famous disciple was 'Anba Ifrahim', Saint Ephraim. The older monks during their hours of standing in the church lean against the wall at their back and prop themselves in front with an 'ukas', or crutch. The abbot finding young Ephraim with a crutch admonished him and cuffed him on the

² It was replaced in the autumn of 1929.

THE FIRST MONASTERIES

back of the neck. The blow drove the crutch into the ground, where it sprouted and is to-day pointed out by the monks as a great tree, the sacred tree of Saint Ephraim; a room has been built round the trunk. In the fertile Egyptian climate this is not such a miracle as may appear; many a garden prop, if still green, will take root and flourish. The 'kasr' is the finest and largest of any monastery, as is also the 'keneeset el Adra', or Church of the Virgin, being ninety feet in length; its choir is roofed with a dome supported by half-domes on each side. The sanctuary is shut off by a wooden screen and doors, containing beautiful carved panels of about the sixth century, inlaid with ivory, the upper row containing figures in the shape of ikons. (Plate VII). In another lesser church of Saint Mary there is a fine old painting of the Virgin. Old paintings are rarer than might be expected, nothing pre-medieval exists except frescoes. A fear of ikon-worship has always been entertained and large numbers of old pictures were burnt in the Middle Ages by order of a patriarch.

It was in this monastery that a wonderful treasure of over one thousand Syriac manuscripts was found by the Duke of Northumberland and Dr Linant; some were brought away by Curzon, afterwards Lord Zouche, in 1833, the others by Dr Tatham, and are now in the British Museum. Owing to its name and tradition there has always been intercourse between Dair el Suriani and Syria, and Syrians were among its monks until eighty years ago, when, after a dispute between the Coptic and Syrian Churches, all Syrians were sent away from Egypt. The Abyssinian Church being an offshoot of the Coptic, there are still occasional Abyssinians in Egyptian monasteries.

The adjacent Dair Anba Bishoi is said to have been built about 364 by Saint Pshoi, after whom the largest church is named. The lofty pointed arches of its nave, aisles and choir have had to be partially or entirely built up to support the roof. In the centre of the nave in the stone floor there is a small marble basin for washing feet, for it was formerly the custom that pilgrims should be met outside the monastery by monks in procession singing psalms. The monks led them to the church, ceremonially washed their feet and held a special service of thanksgiving for their safe deliverance from the dangers of the desert. The nave is roofed with a pointed-arch vaulting, and the choir, separated from it by doors, is transversely vaulted. In the latter, to the left of the sanctuary, stands an ancient wooden shrine, with a coffin containing the remains of Saint Pshoi. Formerly there was at the side of the coffin a hole, through which pilgrims could touch the relics in order

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to be healed of sickness. But later, at the order of an iconoclastic patriarch, the hole was closed up and from this the following modern legend has since arisen. 'A noble English lord and his lady once came to the monastery of Anba Bishoi on a pilgrimage, and a special service was held for them in the church. When the noble lady approached the shrine, Saint Pshoi, as his custom was with all good Christians, put his hand out of the coffin and shook hers most affably. But the lord, who was atheistic at heart, approached in vain, the saint refused to give him even a finger; at which the lord was so struck with grief and anger that he fell down dead on the spot. In consequence the patriarch forbade Saint Pshoi to put his hand out any more, and to make doubly sure had the hole in the wood nailed up'.

Five miles further out in the desert to the northwest stands Dair Baramus, the last of the remaining monasteries. It is also known as the Dair el Seyyida el Adra, the monastery of the Blessed Virgin. The name 'Baramus' is derived from 'Para-Musa', signifying the 'Place of Moses'—that is, of the monastery of Moses the Black, the ruins of which lie just outside the walls. This Anba Musa el Iswid is one of the most romantic figures of the monastic movement. His cognomen implies that he was a Sudanese, or more probably an Abyssinian. Originally the slave of a nobleman, he was expelled from his master's house for theft and general wrong-doing. Large and strong of stature, he then became the captain of a band of seventy brigands, who lived by stealing sheep and even committed murder. Frequenting uninhabited wastes he came into contact with hermits, learnt from them the new truth, was converted, repented of his ill-deeds and fled to Nitria. There he met and became a disciple of Isidore the priest and archimandrite of Dair Abu Makar, successor of Saint Makarius the Egyptian. He built himself a cell and during the rest of his life we find him much troubled by devils and frequently appealing to Isidore for assistance against them. Finally he founded the Dair Anba Moosa el Iswid. Even the end of his life was tragic for he fell at the door of his cell by the sword of a brigand.

The district from Dair el Suriani to Dair Baramus is that of the 'Cells', where Saint Makarius the Alexandrian was abbot; in the latter monastery the church of El Seyyida el Adra, the Blessed Virgin, is stated to have built by him about 350, and to be the oldest church in the Wadi Natrun. In it lie buried Moses the Black and Isidore the priest mentioned above. It is constructed in the usual style of the oldest churches, the pointed arch between nave and choir being

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afterwards built up with piers. It has three wooden screens, one across the nave, the other before the choir, and the third entirely shutting off the sanctuary; the panels of the last are singularly beautiful. The church contains some 14th century paintings representing Maximus and Domadius, sons of the Emperor Valentinian, who were monks or pilgrims here about 400. There used to be two other old churches, of Anba Bulos and Anba Abib, which were unfortunately restored about fifty years ago and turned into one, now dedicated to Yuhanna el Maamidan. It copies a Greek church, the antique stamp is entirely gone and the screen gaudily painted with imitation graining and carving is a poor contrast to the genuine article.

But evidently as old as the foundation of the monastery, and its most interesting building, is the refectory adjoining the church of the Virgin; a rough domed vault, it is lit only by two unglazed apertures in the roof. (Plate VIII). Its one entrance is direct from the church, from which the monks repaired to it after the main service on feast-days and sat on stone benches down the two sides of a stone table. Table-clothes were unknown luxuries; the surface of the table is in the form of a trough and filled with sand, which can easily be changed when dirty. Dishes of food were passed from the kitchen through a hatch in the end wall, an ancient example of a modern convenience. At the end of the refectory there is a stone lectern, coeval with the room, at which one of the monks reads from the Bible to the others when eating.

Dair Baramus, the largest in the Wadi Natrun, has a large vegetable-garden watered by a shallow well impregnated with soda; whilst an artesian well 100 feet in depth gives drinking water. There is a considerable trellis of vines, the grapes of which are eaten; the sacramental wine, 'abarki', being made in all monasteries out of black Syrian raisins. The holy bread, 'kudus Allah', the consecrated of God, is baked at the monastery and each monk receives at the Eucharist one loaf, which retains its spiritual power for three hours. On it are crosses representing Christ and the twelve apostles, and punctures for the nails and the spear-wound of the Cross. This monastery has a non-resident bishop and about fifty monks.

In the desert away to the west of Dair Baramus lies a petrified forest, where the broken-up stems of the trees attain a length of up to 80 feet. There is a legend, unfortunately geologically impossible, that the Wadi Natrun was once a branch of the Mediterranean Sea infested by pirates who harried the monasteries; but that during a raid Saint

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Makarius turned the ships and men to stone, hence the abundance of silicified wood. The monks even relate that at a certain place out in the desert can be seen a pirate galley with its fighting men and rowers on their benches, all intact and petrified.

Such was the nature of the place and of the men among whom and through whom the great monastic movement had its inception; and such are the places and the men who today uphold the cult in its cradle. It made a further advance in Upper Egypt, where Pachomius of Tabenna, who began his religious career as a monk of the 'Cells', founded a number of monasteries, and regulated monasticism into a strict code. This was introduced into Europe; it was amplified and amended, and from it arose that spiritual society which, under a temporal Pope, ruled Europe until the Reformation.

Fresh Light on the Stone Ages in Southeast India

by L. A. CAMMIADE and M. C. BURKITT

THE first Indian Palaeolithic stone implement was found more than 60 years ago in a ballast pit at Pallavaram, a little to the west of the Madras-Trichinopoly road. Since then a large number of stone tools belonging to various prehistoric cultures have been discovered by several keen archaeologists, among whom Bruce Foote¹ deserves special mention.

During the last fifteen years or so, however, little has been published from the southeast of the Peninsula, archaeological attention having been more specially focussed on the unsuspected Sumerian-like discoveries in the north. Nevertheless, both in Southeast India and in Africa, fresh information has been collected which is very important for the elucidation of the origins and movements of prehistoric cultures.

In the course of service under the Government of India one of us (L.A.C.) has had to tour along the Eastern Ghats, which run parallel to the eastern seaboard of India for a distance of over 300 miles. The country is wild and sparsely inhabited. This wildness has been a blessing from the point of view of the prehistorian; the soil has hardly been disturbed by cultivation, and valuable prehistoric sites have remained intact which in the more civilized parts of India would have been ploughed up and destroyed centuries ago. The region has yielded a large number of stone implements which on stratigraphical and typological grounds, as well as from a study of their state of preservation, can be grouped into four series belonging to four distinct cultures of different date.

1 The earliest industries are characterized chiefly by the presence of hand-axes made of quartzite. There are various types present, and they can be closely paralleled among similar finds in Africa.

¹ Robert Bruce Foote was for some time Superintendent of the Geological Survey of India.

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2 Next are found flake industries with some much more neatly made hand-axes. The material employed is chiefly quartzite, but sandstone and chalcedony are also used.

3 Industries of the third series are characterized by the presence of slender blades with blunted backs, a few burins, planing tools and end-scrapers. The material used for such implements is often of a flinty nature such as Lydian stone.

4 Lastly, microlithic industries occur, pigmy tools vastly outnumbering all implements of normal size. The average length of the tools is about $\frac{3}{4}$ inch. The materials used are chiefly agate and quartzite.

It must be noted at once that, except in the case of the earliest series, industries are seldom found unmixed with members from the other series. Thus the flake industries will almost always yield a few examples from the earliest series and occasionally one or two tools that clearly should be grouped with series 3. Again industries belonging to series 3 nearly always contain specimens of series 2; but no examples of the hand-axes of series 1 have ever been discovered.

A study of the stone implements and, with them, of the climatic changes that have taken place in this area in the past is to a large extent bound up with the question of the origin of laterite,* a widely occurring geological formation.

Laterite is produced by the weathering of many different kinds of rocks such as gneiss, basalt, granite, etc. As a result of the percolation of surface waters carrying in solution atmospheric gases (carbon dioxide, etc.) the feldspars and allied minerals of these rocks at first become converted into aggregates of sericite, kaolin, quartz or calcite, while the ferro-magnesian minerals give chlorite, serpentine and talc, with separation of iron oxides. Glassy rocks become devitrified and stony. Prolonged weathering of this nature causes the rocks to lose their alkalis, their lime, and some of their silica and iron, and the final result, laterite, is a decayed clayey mass, consisting largely of hydrated silicate of alumina and iron. It is obvious then that the formation of laterite can only take place where there is a very considerable rainfall, and, in fact, it is only in the tropics and even then in

* In this connexion see such writers as:—P. Lake, *The Geology of South Malabar between the Beypore and Ponnani Rivers*, Mem. G.S.I. xxiv, pt. 3, 1890; Malcolm MacLaren, *On the Origin of Certain Laterites*, Geol. Mag. 1906, p. 536; F. P. Mennell, *Notes on Rhodesian Laterite*, Geol. Mag., 1909, p. 350.

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areas of especially heavy rainfall that such rocks have, in general, yielded laterite. Further, as its occurrence is restricted to horizontal or gently sloping surfaces it would appear that water-logging of the soil is an important condition for its formation. But water-logging by itself produces no laterite; it seems essential that there should be an alternation of perfectly distinct wet and dry seasons such as those which today succeed one another along the Malabar coast of west India, where over 80 inches of rain falls within the months of June, July and August, but none at all during December, January and February. In Southeast India today no laterite is being formed, but the presence of extensive deposits of this material indicates that in the past climatic conditions must have been such as at present occur in Malabar. As laterite is a rock of slow formation, this pluvial period must have been very protracted, and while it lasted dense tropical forests similar to those of Malabar and Ceylon must have existed along the east coast.

Mankind does not seem to have inhabited the southeast area during this period. Probably the presence of the dense forests deterred him. Throughout prehistoric times he seems to have preferred the open country, and this for obvious reasons. But after the formation of the laterite a dry period seems to have set in, in the southeast of the peninsula, causing the breaking up and weathering of the upper part of the laterite previously formed. It is in this decayed laterite, either *in situ* or washed down and re-deposited, that implements of the earliest series occur; and so it would seem that during this dry period, the surroundings having become more congenial, the first inhabitants of the district lived on the laterite. Further the evidence seems to suggest that this washing down and re-deposition of the weathered laterite was due to the setting in of a second damp period, which in its turn was followed by a second dry period and a third of greater humidity. The sequence can be briefly tabulated as follows:—

- 1 A long damp period marked by the formations of laterite on the east coast of India between the rivers Kistna and Palar. No human relics can be referred to this period.

- 2 A long dry period, when the swamps and forests of the laterite period gave place to large open plains. The makers of the hand-axes, etc., of series 1 settled ubiquitously on these plains.

- 3 A period of violent rain, which swept down shingles from ancient marine formations, the débris of laterite rock that had weathered and accumulated during the dry period, and the relics left by the early

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settlers. Much of this material was not swept into river channels or deposited as river gravels, but was carried straight down and deposited in shallow beds devoid of stratification. With the formation of these detrital beds the hand-axe culture (series 1) of Southern India, which had been flourishing, came to a sudden end, and the country seems to have been largely depopulated.

4 A second dry period, during which a sparse population settled on the newly formed beds of detrital laterite and clays. Although some hand-axes survive, the new population used flakes and industries of series 2.

5 The climate again became humid, but this wet period differs in character from periods 1 and 3 in that no laterite was formed nor was the rain-wash violent, though it appears to have been heavier than it is today. The rivers deposited alluvium in which flake industries of series 2 occur.

6 and 7 Lastly some evidence seems to suggest a decrease in the rainfall followed by a period of denudation, leading up to present conditions. Industries belonging to the third and fourth (last) series are associated with these periods.*

This climatic table is based on observations made at a large number of sites and, from among these, some five have been selected for description here to demonstrate the sequence of the four cultures and to illustrate the climatic changes that have just been described.

The first of these sites is in the Bhavanasi gravels (plate 1), where rolled implements of drift type (series 1) occur in an ancient pebble bed, the materials of which have been derived from under an almost vanished laterite plain of denudation. An industry of series 2 is found in the alluvium above the pebble bed. A good section is in the cliffs on the banks of the Bhavanasi, opposite the village of Krishnapuram at the western entrance of the Dornala-Atmakur pass across the Nalla Malai Mountains. It has been recorded as follows:—

1	Sticky brown clay	} 14 to 16 ft.	Average 15 ins.
2	Red alluvial clay		
3	Pebble bed	3 ins. to 4 ft.	
4	Broken shale	} 10 to 12 ft.	
5	Sound shale		

The implements, which belong to series 1, were found among the pebbles of layer 3, and were therefore derived from the same

STONE AGES IN SOUTHEAST INDIA

area as the pebbles themselves, as may be further proved from the following considerations :—

a The implements have been stained by laterite to the same deep colour as the pebbles, and as there is no laterite on the hill slopes (and there never was any, as laterite only forms on level ground) the implements did not come from the slopes.

b The implements in the pebble bed have not been subjected to much rolling, and so have not travelled far. They have not, therefore, been washed down from the top of the hills, where laterite beds do occur containing implements of drift type, as they would have been battered about in the process.

c Implements of similar type are to be found on the shingle around Krishnapuram, and a laterite bed about 6 feet deep overlies the pebble bed at Siddapuram, about three miles above Krishnapuram. This laterite formation was once far more extensive, and a good deal of it has been washed away. It was probably on this laterite formation that Lower Palaeolithic man lived, and it, together with the underlying shingle, was washed down and re-deposited during the wet period (period 3 of the climatic table) to become the pebble bed of layer 3.

The implements found today in the pebble bed must have been buried for a prolonged period—as they have been deeply stained—before they were washed out and carried down by the flood waters during period 3. After this the red clay was deposited,³ and this contains flakes belonging to series 2 which show little or none of the laterite staining so typical of the implements from the pebble bed below. Both the pebble bed and the overlying red clay must have been laid down under damp conditions, damper than those obtaining today. The overlying brown alluvial clay would also have required a damp period for its formation, but between the brown and the red clays there is an unconformity, indicating that a considerable time elapsed before the brown clay was deposited on the red. It is probable, then, that between the deposition of these two clays a much dryer period intervened (period 4 of the climatic table).

³ The red colour is probably due to the underlying laterite. There is no evidence to show whether or not a dry period occurred between the formation of the red clay and the underlying beds of re-deposited laterite. On the whole it would seem wiser, until further work has been undertaken in the region, to assume that the deposition of the red clay was due to the setting in of less violent conditions towards the end of period 3.

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The implements from the pebble beds include roughly-made *coups de poing* (hand-axes). They are made of quartzite, and some of them have pellets of laterite still adhering to them. They are rolled, but not to an undue extent. As is necessarily the case with quartzite implements, they present on the whole a rough appearance. They have clearly been made from pebbles, portions of which in many cases remain untrimmed at the butt ends. The flaking is bold, and the edges are irregular. Plate 1, nos. 6, 7, 8, are typical examples. No. 5 is an interesting example of a type recalling the rostro-carinate, there being a flat ventral plane, produced by the removal of a flake, from which rises a keel which ends in a dorsal platform formed by part of the original surface of the pebble (fig. 1, 3). A somewhat similar specimen, larger in size however, was found far away at Chodavaram (plate 1, no. 11 and fig. 1, 2). A gigantic example of almost exactly the same type was found in Nigeria and can be seen in the University Museum of Archaeology and Ethnology at Cambridge (fig. 1, 1). Plate 1, 1, is also of great importance. It is the type of tool which was first recognized at Victoria West in South Africa.⁴ Pointed at one end, the under surface is almost entirely formed by the removal of a great plunging flake, the remainder of the under surface showing bold trimming. Fig. 11, nos. 1 and 3, illustrate the Indian specimen and an example from Victoria West. The occurrence of the Victoria West type of tool in Southeast India is of extreme importance. As in India, so in South Africa it is found associated with *coups de poing* (hand-axes), but in South Africa it seems to be more particularly connected with the use of dolerite as a tool-making material. Although principally found in the Union of South Africa, this type of tool will probably turn out to have a wider distribution. In South Africa it would seem that, though Lower Palaeolithic in date, it is connected with the first appearance of flake industries.

The industries (series 2) from the red clay⁵ are represented by a number of flakes; one is green in colour, has a faceted striking platform, and is completely unweathered; two others are slightly stained by laterite but the edges are still sharp; the one has a prepared striking platform, the other has not (plate 1, nos. 2, 3, 4).

⁴ See M. C. Burkitt, *South Africa's Past in Stone and Paint*. Cambridge Press, 1928, p. 55 et seq.

⁵ It is possible that one or two flakes also occurred in the overlying brown clay.

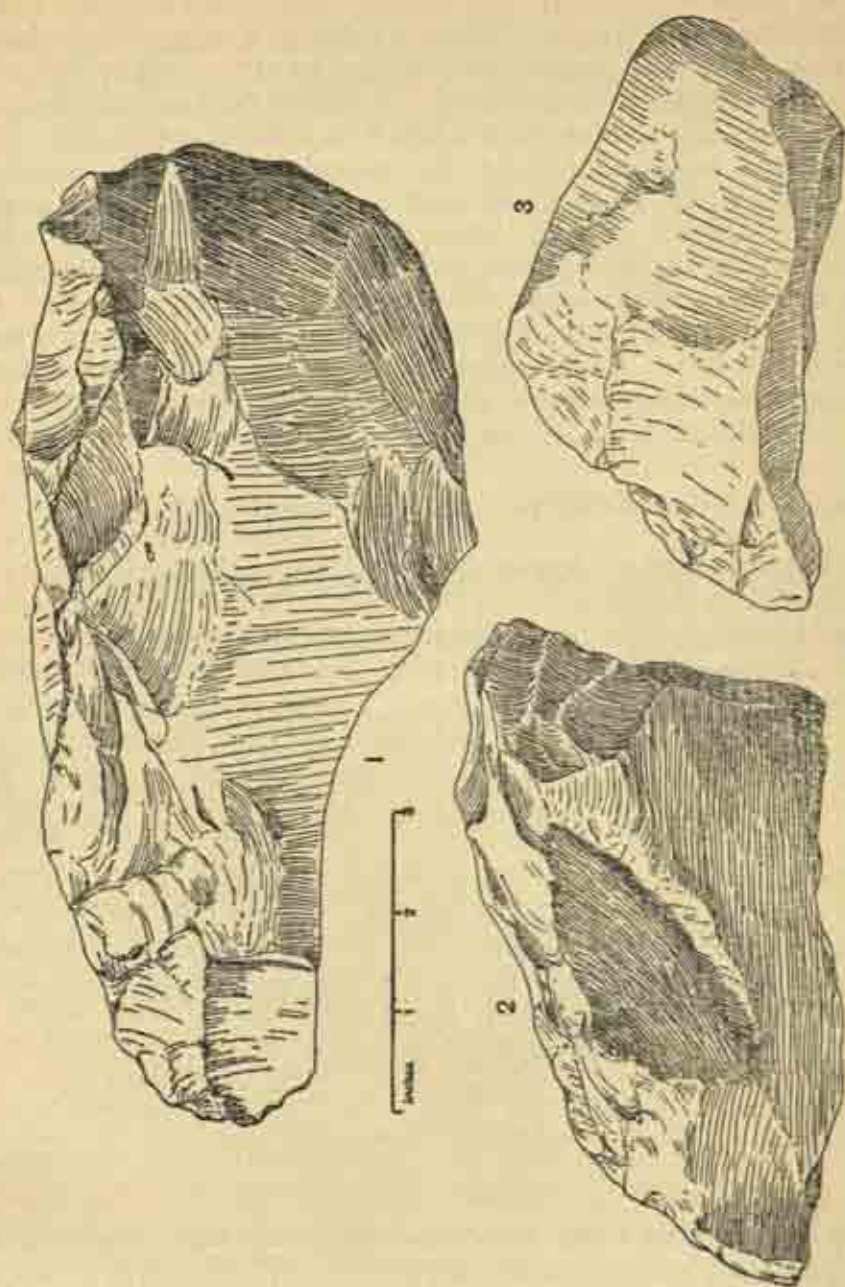


FIG. 1. ROSTRO-CARINATE TYPES FROM—1, NORTHERN NIGERIA; 2, CHODAVARAM; 3, BHAVANASI GRAVELS

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As a proof of the great antiquity of some of these Southeast Indian implements, a site near the village of Yerra-Konda-Palem, near the eastern entrance of the Dornala-Atmakur Pass across the Nalla-Malai Mountains, is interesting. It shows the conditions which existed at the eastern or seaward side of the hills, just as Krishnapuram demonstrates the conditions on the western side. The site is in a plain or flat valley about a mile wide, and is flanked on both sides by hills. A small river, Ralla Vagu, a tributary of the Gundlakama, flows down the valley. During some renovations to the embankment of an irrigation canal some water escaped and eroded a few short gullies about 6 to 10 feet in depth, exposing the bedrock for a length of about 100 feet. On the sides of one of the gullies, and almost at the bottom, some implements were found *in situ* firmly embedded with other stones (plate I, nos. 9-10). The following section was observed :

- 1 Silt
- 2 Pebble bed of small pieces of quartzite and sandstone
- 3 Silt
- 4 Pebble bed of small pieces of quartzite and sandstone
- 5 Silt
- 6 Derived quartzite pebble bed, containing the tools
- 7 Quartzite bed

Clearly several climatic changes have supervened since the implements were there deposited! Elsewhere, a mile or two away on the hillsides, flake industries, in part at any rate belonging to series 2, were found, but their relationship to the older tools could not be determined.

Another site of considerable interest is at Gundla-Bhramhesvaram, a little to the south of the River Kistna. Implements (plate II) occur in weathered laterite under forest soil in a high mountain valley, and once again there is evidence that a hand-axe industry was followed by one of flakes. The section is as follows :—

- | | | |
|---|---------------|-------|
| 1 | Bamboo forest | |
| 2 | Forest soil | 2 ft. |
| 3 | Ashy beds | 1 ft. |
| 4 | Laterite | 4 ft. |
| 5 | Gneiss | |

As the site is in a high mountain valley there are few complicating factors, the implements cannot have been drifted in from elsewhere, and the laterite spread is necessarily of local origin. The configuration

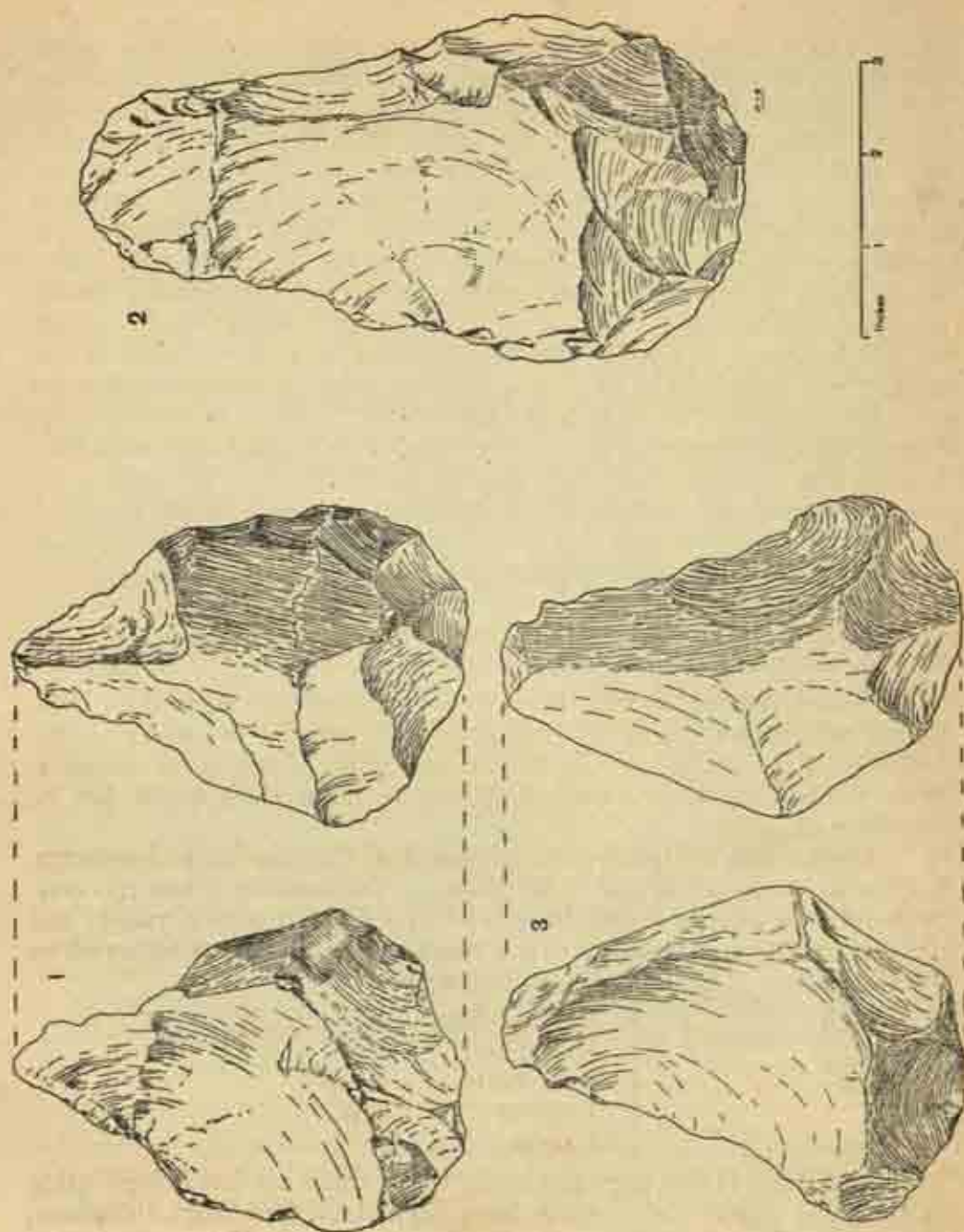


FIG. 6. TOOLS OF THE VICTORIA WEST TYPE FROM—1, BHAVANASI GRAVELS; 2, GIDDALUR B; 3, VICTORIA WEST, SOUTH AFRICA

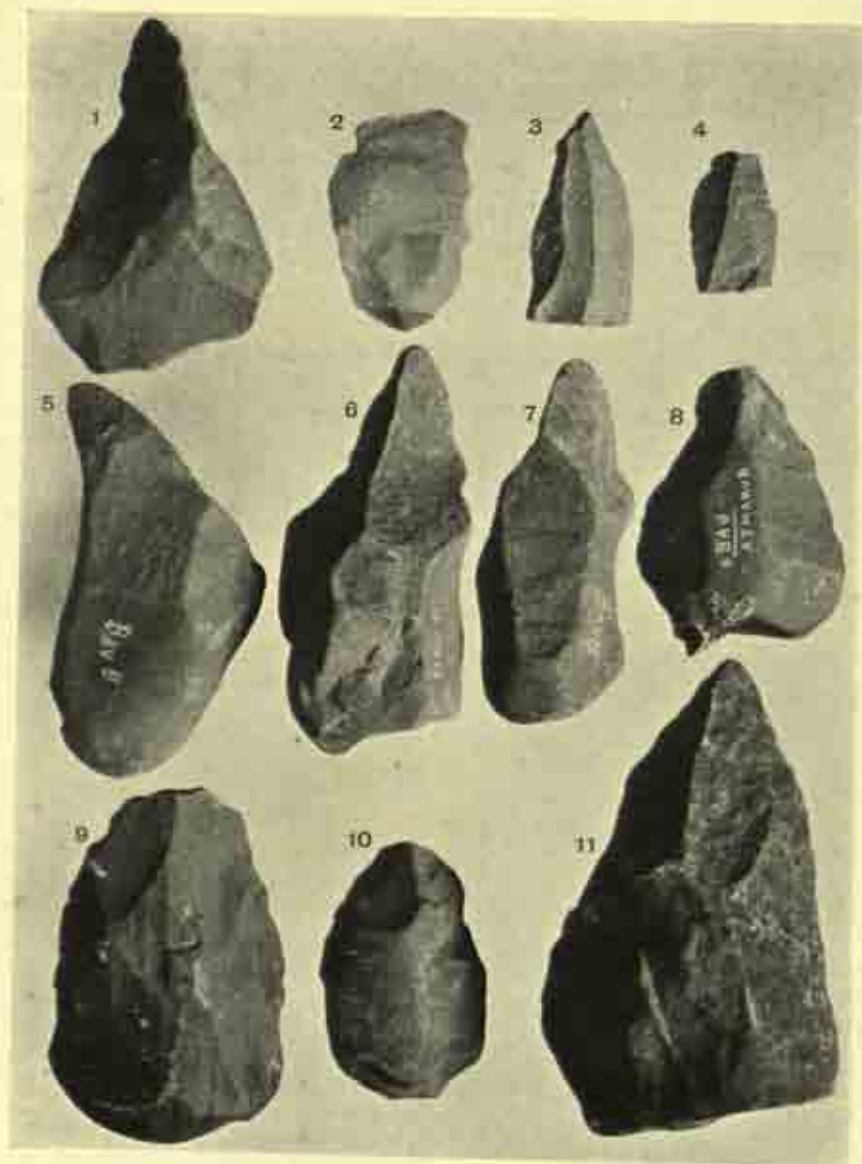
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of the valley seems to have undergone no appreciable change since the time when the hand-axe makers settled there. From the upper part of the laterite a number of *coups de poing* (hand-axes) have been found. They are deeply stained; one of them is thin, sub-triangular in shape, with straight edges, and in Europe would be classed as late Acheulean or even early Mousterian in date (plate II, no. 12). Another is of more ovate form (plate II, no. 11). From the overlying ashy bed a number of long flakes have been collected, showing far less stain. Some have prepared striking platforms, others have not. Small discs also occur (plate II, nos. 1 to 7). Plate II, nos. 6, 8 and 9, are of particular interest. The first of these is a small flake with a faceted striking platform, the upper surface being formed by long parallel flake scars. No. 9 is a double-ended burin of a very Upper Palaeolithic appearance (fig. III, no. 4). No. 8 is also a small burin, though less typical. While no. 6 is of quartzite and may belong to series 2 already described, nos. 8 and 9 are made of cherty material and it seems probable that there has been an admixture with examples of series 3, to which typologically they undoubtedly belong.*

Several other important sites occur near Giddalur (plates III and IV), a town near the Nandi-Kanama Pass. Its elevation is 700 feet above the sea, and the river Sagileru flows past the town. In Palaeolithic times conditions along the banks of the river must have been very pleasant, judging by the number of stone implements to be found there. The section at the first site, Giddalur A, consists of an almost vertical bank of shale, overlain by derived laterite, the age of which is probably equivalent to that of the pebble bed at Bhavanasi. Tools belonging to series 1 and 2 were there collected, but these can be separated on grounds of state of preservation and type. The flake types, which include discs, are always less weathered than the *coups de poing* (hand-axes). Giddalur B is very similar. Tools from Giddalur C occur under a more recent black clay in the valley itself, and have a fresher appearance; typologically, however, they seem to belong to the end of series 1 and the beginning of series 2. Once again we notice at the Giddalur sites the occurrence of the Victoria West technique among examples

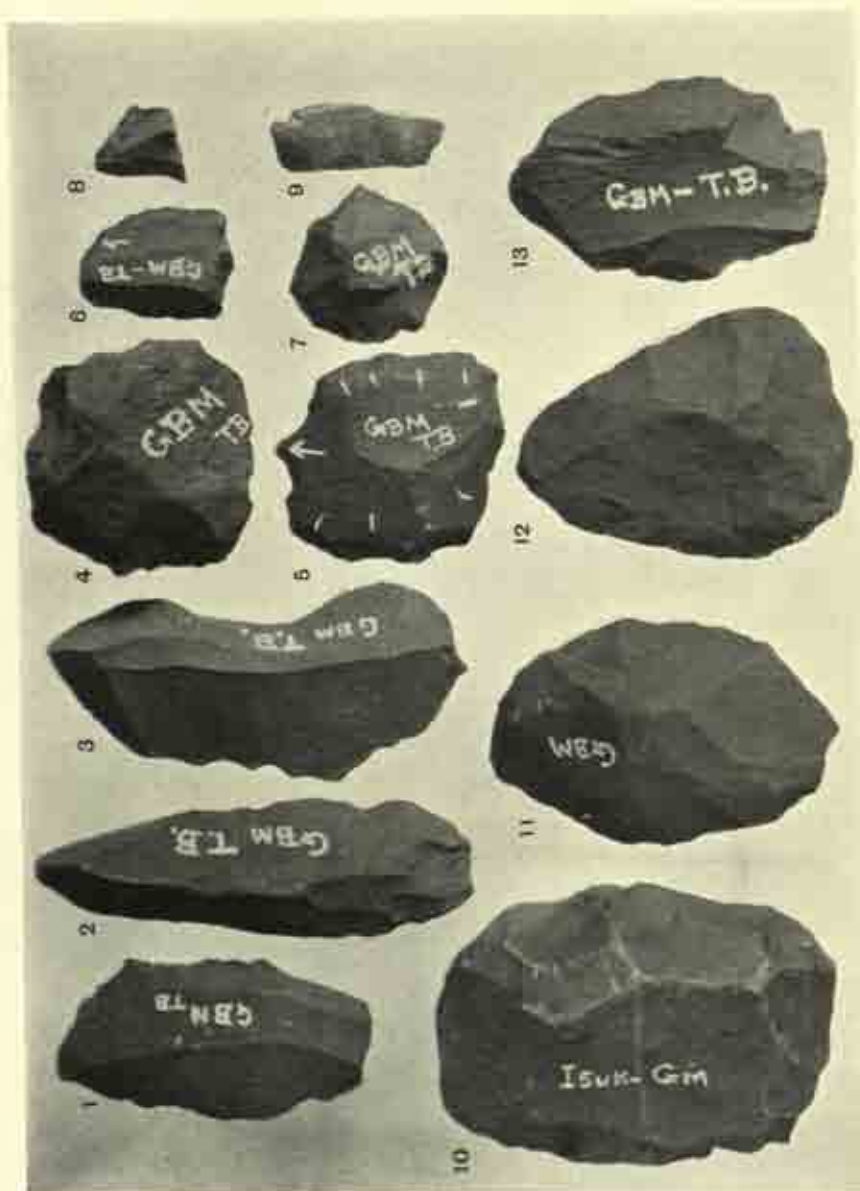
* A stone tool (plate II, no. 10), a sort of coarse rubbing tool or plane, and from its state of preservation probably belonging to series 2, was found on the top of the mountains thereby. Today these Nala Malas are but sparsely inhabited owing to the thick bamboo forests and the presence of this implement is but another indication that a dry period probably existed there formerly.

PLATE I



Nos. 1-8. STONE IMPLEMENTS FROM THE BHAVANASI GRAVELS
1, 3, 6, 7, 8 ARE EXAMPLES OF SERIES I AND 2, 5, 4, OF SERIES II;
9 AND 10 FROM VERKA-KONDA-PALEM; 11 FROM CHODAVARAM

PLATE II

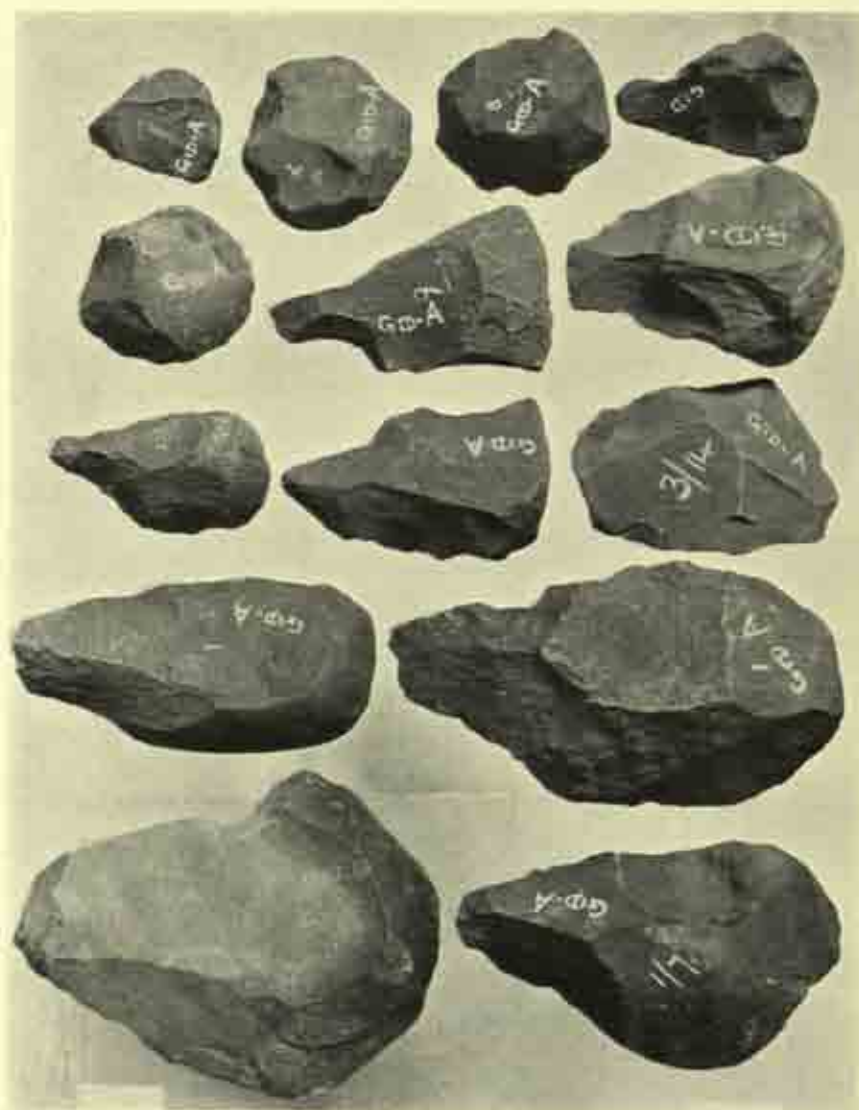


Nos. 1-9 AND 11-13, STONE IMPLEMENTS FROM GUNDLA-BHIRAMSHVARAM

(11-12, series 1; 1-7, series 11; 8 and 9 series 10)

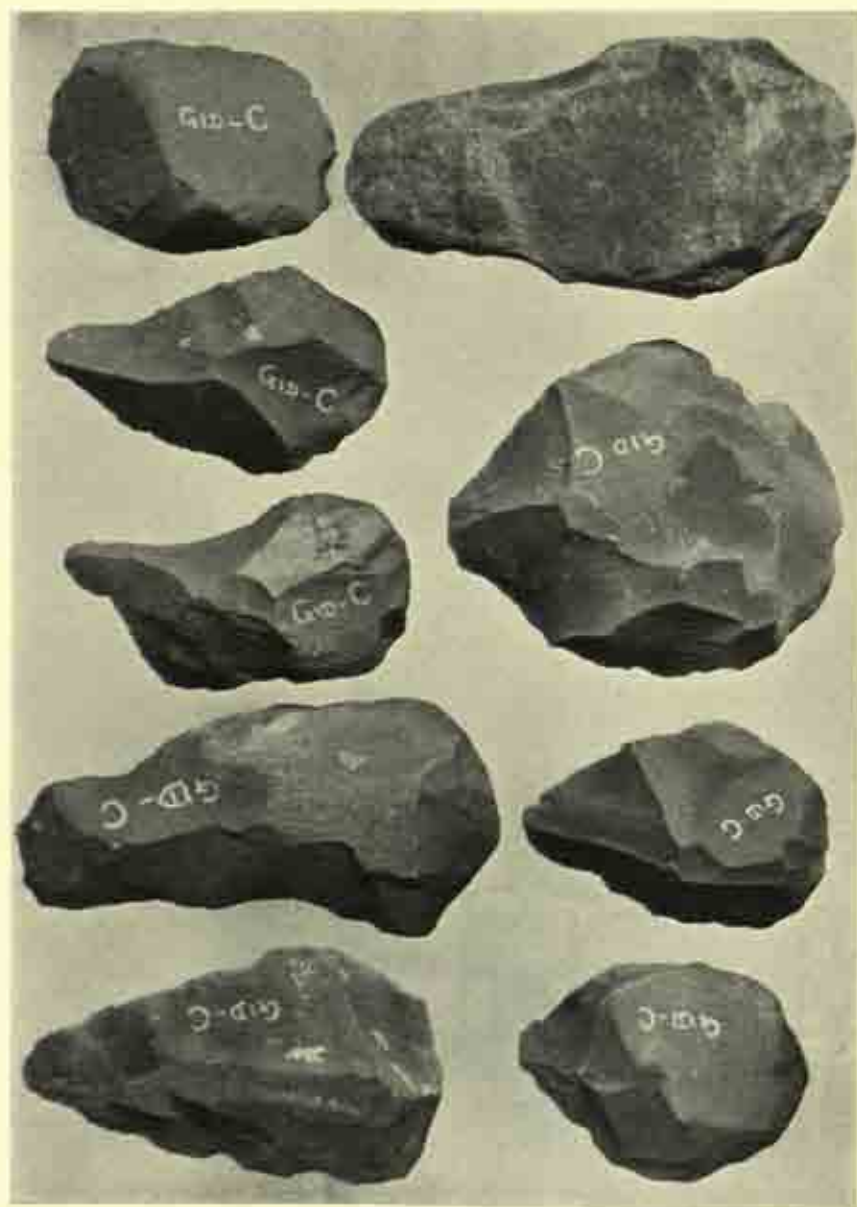
No. 16, A COARSE RUBBING TOOL, A SURFACE FIND FROM THE TOP OF THE MOUNTAINS IN THE VICINITY

PLATE III



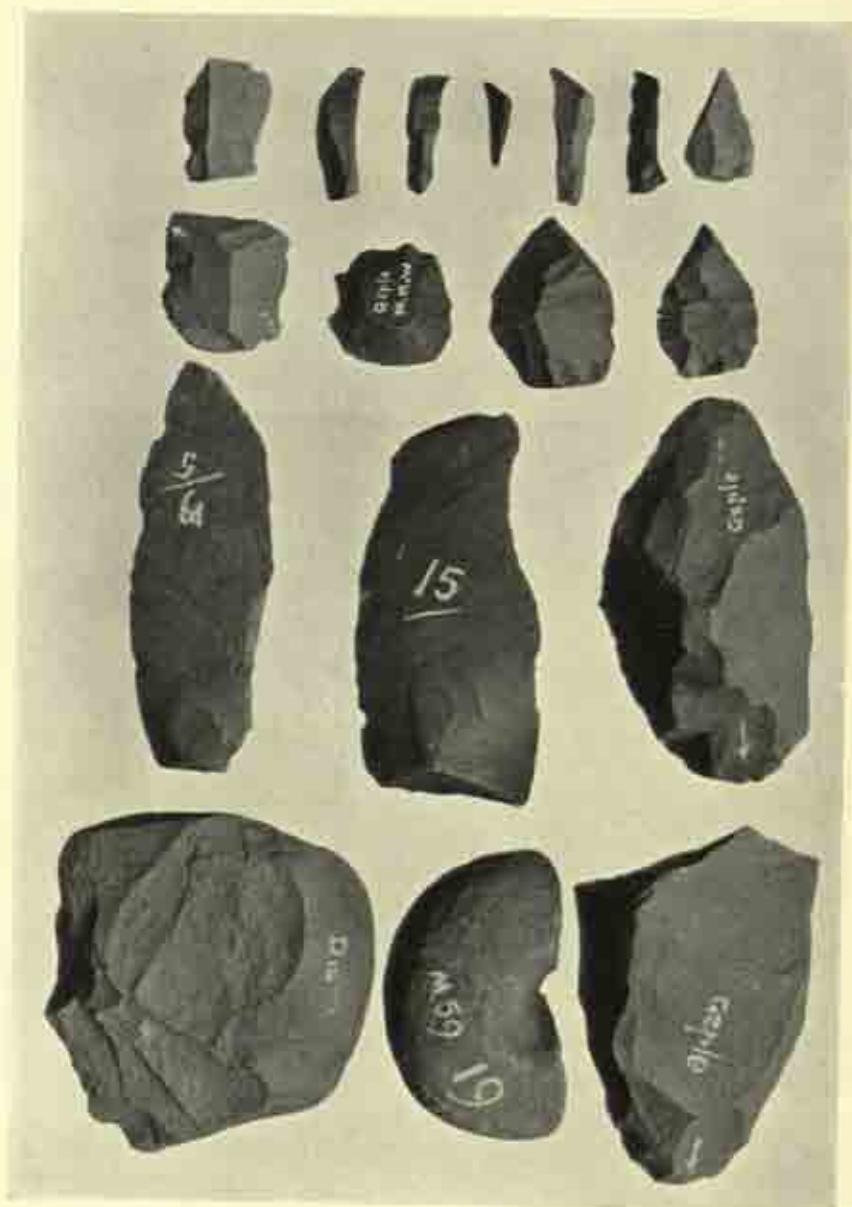
INDUSTRY FROM A SITE NEAR GIDDALUCK, COMPRISED OF SERIES I AND II TOOLS

PLATE IV



TOOLS FROM SITES NEAR GIDDALUR

PLATE V



IMPLEMENTS ILLUSTRATING SERIES III FROM THE EASTERN AND WESTERN
ENDS OF THE NANDI-KANAMA PASS

No. 12 is a coarse burn on the end of a long flake

PLATE VI

B

A



A. SMALLER TOOLS FROM THE NANDI-KANAMA PASS, BELONGING TO SERIES III
 B. PIGMY IMPLEMENTS FROM THE GODAVARI RIVER, TYPICAL OF SERIES IV
 Note, in the bottom row, a small pedicled flint type of chisel found with this series

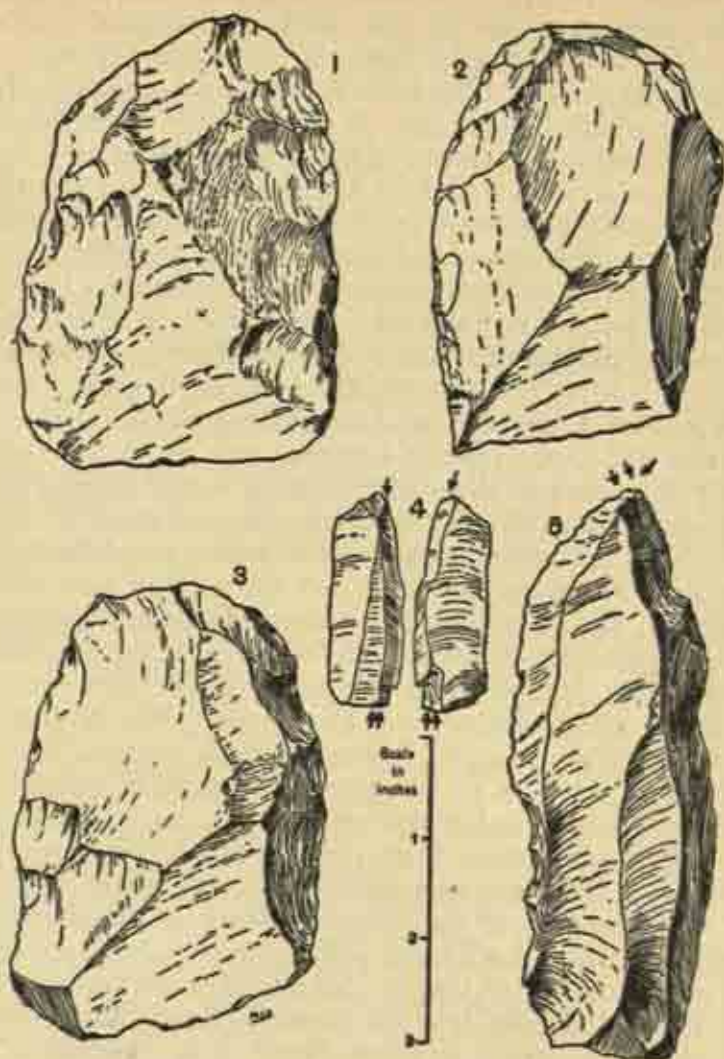


FIG. 3. 1, 2, 3, CLEAVERS FROM S. RHODESIA, TABELHALA, N. AFRICA, AND GIDDALUR A,
4 AND 5, BURINS FROM GUNDLA-BHRAMHESVARAM AND THE NANDI-KANAMA PASS.

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of the older series (plate IV, no. 9 and fig. II, no. 2) and also the type represented on plate I, no. 5. Plates III and IV illustrate a series from these sites, and fig. III shows the exact similarity of a cleaver from Giddalur A (3) with examples from S. Rhodesia (1) and Tabelbala, Oran, North Africa (2). The occurrence of the square-ended type of *coup de poing*, which also occurs in Africa, may be observed as well as a sort of Micoque-like type of *coup de poing* made on a flake.

Sites where series 3 were best found are at the eastern and western end of the Nandi-Kanama Pass.⁷ Banked against the sides of the valley there were deposits of red clay overlain by red sandy soil. The implements (plates V and VI, a) occur on the surface of the red clay. A few of them, judging by their state of preservation, would at first sight seem to belong to series 2,⁸ but a number of knife blades, made from black Lydian (?) stone and showing fine blunting down the backs, occur. There were also a number of core-scrapers and burins, the latter recalling the technique of core-scrapers, but made on the thickness of a flake; they almost all seem to belong to the gouge type. Small crescents, also made from fine-grained rock, occur, and these perhaps link the series 3 industries with those of series 4. A large number of the latter were found on the surface of the ground near the Godavari river (plate VI, b). They form a rather monotonous series of small pigmy tools including crescents, knife-blades, triangles, flakes, cores, core-scrapers, etc., which recall the pigmy finds from the Banda and Vindhya Hills. Some larger tools also occur. The finding of a small celt of Burmese type (plate VI, b, bottom row), near the Godavari river with tools of series 4 is of very great interest, if indeed it is contemporary. Whereas industries of series 3 are numerically poor, especially when admixtures from series 2 and series 4 are eliminated, those of series 4 itself are very rich. In many ways they are closely allied to the industries of the Wilton culture of South Africa, which have also been found in Kenya and Uganda. It would seem, then, that whereas industries of Upper Palaeolithic type and probably made by folk of Upper Palaeolithic stock, occur in South Africa, are common in North and East Africa, and are found as far northeast as Transjordan, they are distinctly rare in Southeast India, and we seem to be

⁷ Much exploration has still to be undertaken in cave sites. Bruce Foote mentions bone objects associated with fauna from the Billa Surgam caves in the Kurnool district.

⁸ Among these, however, was found a coarse burin on a long flake (plate V, no. 12 and fig. III, no. 5).

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on the periphery of the Upper Palaeolithic civilization. The pigmy tools of series 4, on the contrary, link up with the Wilton culture and probably form a not unimportant part of the great Mesolithic spread of cultures.

Throughout this article the reader will have noticed that all the series of industries mentioned have exact counterparts in Africa, especially in South Africa. It becomes obvious that close connexion existed in those days between the two areas. The succession of climatic changes is also very important, and can be correlated in general with those that are being worked out by Leakey and Solomon in Kenya. Naturally regional conditions have to be taken into account, but the succession of pluvial and dry periods, starting with early Palaeolithic Man and continuing to Mesolithic times, are strikingly similar in these two widely separated regions.

It has only been possible here to outline the new knowledge and the evidence on which it is based. What is needed now is a small, well-equipped expedition to re-examine the whole problem in the Peninsula of India in the light of recent discoveries in various parts of Africa.

Concerning Orientation

by GEORGE ENGLEHEART

IF the possessor of a set of *Archaeologia* will open volume 25, for 1834, he will find over 40 pages, with many admirably drawn plans and plates, explaining some of the chief megalithic structures in England and Brittany as *Dracontia*, or temples of serpent-worship, a name and attribution which had originated with Stukeley a century earlier. This is but one example of the fantasies of the antiquaries of those times. We should, however, be slow to ridicule those old inquirers; they lacked our *nova organa* of excavation and comparison, the eyes and brain of modern archaeological science; though it is difficult to understand why they abandoned in these studies the sounder reasoning which served them in every-day affairs.

The axiom will not be disputed that the Science of today holds nothing as proved or probable which would not be held as such in a court of law. And yet, if the same reader will advance a century, from volume 25 of *Archaeologia* to volume 73, he will find an article propounding at length, again with many exquisitely drawn plans, a theory of the same structures which must equally fail by the test of this axiom—a theory similarly based on unverifiable initial assumptions and similarly buttressed by unsound inference. It is, in brief, that the builders *intentionally* directed the median line or 'axis' of these monuments to some sunrise or sunset point, or to the rising point of some star on the horizon. It will also be found repeated in condensed form in *ANTIQUITY* for March 1927.

In these articles the introductory statements are made that 'the occurrence of orientation in prehistoric structures has long been noticed'; that 'many observers have noted the *fact* of orientation'. It might rather be asserted that an unsupported conjecture of some centuries ago has been constantly reiterated without scientific examination, and a saying of Sir Richard Colt Hoare here comes to mind: 'One man adopts a system or hypothesis, and another follows him, not examining the grounds on which the foundation was laid, so much easier is it to follow than to take the trouble of inquiring'.¹

¹ *Modern Wilts, Hundred of Branch and Dole*, pref. p. 6.

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This theory of designed orientation has passed widely as incontrovertible fact; it is affirmed, for example, in almost every book, pamphlet or article on Stonehenge. It has its roots in the attribution of these monuments to sun-worship by the antiquaries of the 17th and 18th centuries, to whose undisciplined imagination any such quasi-religious mysticism appealed. Dr John Smith in 1770 declared that the Hele Stone of Stonehenge 'indicates the sun's greatest amplitude at the summer solstice'. Sir Norman Lockyer in 1901 demonstrated by elaborate calculations that the central line of the Stonehenge Avenue is a prolongation of the axis of the building, intentionally and accurately directed to the midsummer sunrise. He lost credit by fantastic extensions of his belief to prehistoric remains at large, and his designation of Stonehenge as a solar temple has failed of acceptance by serious authorities. Archaeology abhors an unrelated instance as Nature abhors a vacuum, and it was argued fifty years ago by that acute reasoner W. C. Lukis that 'had rude stone temples existed in Europe, buildings erected for religious worship which might clearly be distinguished from Sepulchres, we might have concluded that they were erected in honour of the sun or other divinity, *but no such building exists*'. (*Archaeologia*, XLVIII, 428). There are no certain indications of sun-worship in Britain before the importation of Mithraism by Roman legionaries. Objects of foreign provenance bearing supposed solar symbols, such as the cross or the fylfot, were probably accepted by northern peoples as ornaments, without knowledge of their original significance. And 'it must on all hands be admitted that the cross on works of art is very often nothing more than an ornamental device, readily suggested to men of all countries and in all stages of culture'. (Thurnam, *Archaeologia*, XLIII, 400).

The advocacy of the chief exponent today of orientation, however persuasively expressed in the two above-mentioned articles, cannot survive the test of the foregoing axiom. Intentional orientation being assumed as generally granted, a twofold explanation is advanced of its purpose. The first, on which most stress is laid, is that stone circles were set up when men were advancing from the hunter stage to the agricultural, in order 'to establish a calendar which should indicate what the connexion was between the sun and agriculture'. The assumption is appended that the Neolithic or Early Bronze Age farmer had already made the present division of the year into quarter and half-quarter days, with the assertion that the axial diameters of megalithic circles are severally and precisely directed to the sunrises and sunsets of these

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divisions. Objections are obvious. The supposition is untenable that any intelligent people would with immense labour rear an assemblage of huge stones to mark the seasons for field-operations, when a few stout posts, periodically renewed, would suffice. It has also been pointed out that the blocking of the view of the sun by the high and broad stones of Stonehenge made such a structure 'useless for calendar purposes except to fix one date, namely the week (if that can be called a date) of midsummer time'. (ANTIQUITY, March 1927, p. 51). And it is more than improbable that any such defined calendar can be traced back for 3000 or 4000 years. The evidence for neolithic corn-growing is only sufficient to show that it must have been a very small supplement to livelihood by the chase, which in turn was succeeded by a pastoral period before the fully agricultural. To attribute any such perfected institution of 'works and days' to a Neolithic or even a Bronze Age people is a manifest anachronism.

The second explanation, which makes orientation a sepulchral practice, might be deduced more plausibly from the now-proved sepulchral origin of megalithic erections as a whole. More will presently be said on this point. It is suggested that the eastward disposition of Christian churches and burials may be referred to this alleged primitive custom, but the links of so far-reaching a connexion are not apparent. As to the purpose or purposes of these alignments, the orientist falls between two stools. Admitting that stone circles are sepulchral, with the inference that their orientation was a funereal usage, he makes them at the same time to be instruments for announcing the agricultural seasons. But the force of *tabu*, and the sacrosanct character of grave-enclosures with primitive as with modern peoples, would make such a double use as abhorrent as would be the use today of a churchyard as a market garden.

Before considering the methods of the professors of this belief a not unfair comment may be made. It is denied that the surveyors of these monuments had 'any preconception as to what *ought* to be found' (*Archaeologia*, LXXIII, 196). The orientation of Woodhenge is accepted 'because it appeared to be demonstrated by the facts' (*Woodhenge*, p. 12). But the surveys were surely made to confirm an existing belief or surmise, and the Woodhenge excavators surely *desired* to collate Woodhenge with Stonehenge in respect of orientation. Prof. Macalister, discussing 'a curious psychological difficulty in archaeological research', observes: 'Let an archaeologist once become obsessed with the idea, *e.g.*, that a defaced inscription must be read

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in a particular way . . . he is lost, his eyes will follow the dictates of his mind'. (*Text-book of European Archaeology*, p. 6, note).

The enunciation of the orientist's proposition is this: 'Either (1) the axial lines of megalithic structures are precisely directed to sunrises or sunsets of the quarter or half-quarter days of the calendar, or (2) from some well-defined position within the structure a line of direction is made observable, by some means, to a distant object, natural or otherwise, which line is also precisely that of sunrise or sunset of a calendar day'.

Apart from the extreme unlikelihood that a primitive people could have constructed such a calendar, it is evident that the determination of any such line of direction is purely arbitrary. Including the points of true north and south, and of at least three or four star-rises, a selection is offered from no fewer than fifteen or sixteen possible lines. The surveyor is free to choose any one of all these, and it would be strange if he could not find one which impinges on some external object—a rough stone, a gap in a hill-skyline, *an old thorn tree* (presumably coeval with the circle!) or what not, again at his choice from the entire landscape, and to declare that this was the intentional orientation of the megalithic builder. Any relation between a monument and an object outside it is entirely hypothetical and apparently due to the unrestrained imagination of Sir Norman Lockyer. It is enough to say that there is no fiction which may not be presented as fact by such a choice of data at will.

The same adaptation of data to theory appears in the hypothetical orientation of Woodhenge. 'A line drawn from the centre of the rings', in a direction arbitrarily chosen and 'prolonged beyond the enclosure, cuts the rough sarsen stone lying on the down a quarter of a mile away, known as the Cuckoo Stone'. The author is free to draw any line, and it is sure to encounter some object if sufficiently prolonged, but there can be no possible proof that the builders of Woodhenge drew it, or that any external object came within their purview.

A few examples will illustrate the application of this method. To orientate a certain Irish circle a line is drawn from a stone of the circle over an outlying boulder, '*probably the foundation support of a pillar stone now disappeared*' to a hill-crest beyond, indicating summer solstitial sunrise. (*Archaeologia*, LXXIII, 210).

Of another Irish circle one of the axial lines is continued 400 yards until it strikes 'a small but conspicuous hill-summit'. This is now the site of an old windmill tower, '*but probably had in ancient times some*

sufficient indication of its purpose as a point of sight—a cairn, perhaps, or a pillar stone' (*ibid.*, p. 212). The azimuth of this line is said to be precisely that of 'Bealltaine', May 6. The incongruous admission that this half-quarter day 'was established by King Tuathal, who reigned in the first century A.D.', is no difficulty to the orientist ready with inverted reasoning, for to him it shows that 'the construction of stone circles or of other megalithic remains *persisted to what may almost be called recent times*'!

Another axial line of the same circle is taken across 'the stones at both ends of the diameter *which have unfortunately disappeared*'. 'The orientation should not, however, for this reason be rejected. It is not only inherently probable but is exact'. It may be asked how can the exact position of lost stones in a circle not *exactly* spaced be found?

The italicized sentences show that the alignments are drawn, not only from the superabundant choice of existing objects, but from objects non-existent. It is superfluous to ask how such evidence would be dealt with in a court of law.

The imaginary character of these orientations is well shown when they are affirmed of round barrows (*ibid.*, pp. 214-17). There being no marked starting-point on the bare barrow, the surveyor draws a line *from himself, facing as he chooses, to any outlying object he pleases*. A hill-top marked with a cairn is preferred, whereas, to the present writer's sure knowledge, in Scotland at least a cairn commonly records the killing at the spot of a notable stag in quite recent times.

It is well-nigh impossible to eradicate a popular belief, however false. But to refute the figment of orientation, as thus elaborated, is not difficult; it is indeed self-destructive. It originated in the diametrically mistaken standpoint of its inventor. The Avenue of Stonehenge, as a capital example, has been regarded as purposely laid out to the northeast by a prehistoric surveyor *looking outwards from within the circle*. Now the large and diverse genus of which Stonehenge is a species has *entrances*, varying in length from the short forecourt of the 'horned' grave, through the more extended alley of the passage-grave, to the long avenue of Stonehenge or Avebury. All, in primary purpose, *are ways in, not out*, just as we speak of a road or drive leading up to, not out of a house. It is therefore untrue to say that the Stonehenge Avenue is directed from the circle to the midsummer sunrise. It is nothing other than a road of access, directed, after a curving course of some two miles, *southwest* to the monument. That it does not issue from within, and is no integral part of the

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structure, appears from its stopping some ten feet short of the ditch, and it is noteworthy that the stone avenues of Brittany converging on circles are never actually attached to the circles at their termination.² Probably a *tabu* prohibited close contact of an external road with the sacred precincts.

The same answer meets the asserted identity of orientation of the three circles of Clava, Inverness, because their three alleys of entrance coincide when superimposed in plan (*Archaeologia*, LXXIII, 218). Such passages are ways of ingress to the centre from without, as is shown by their being closed against entrance after completion of the burial. As to their coincidence, if the burials were contemporary, as is suggested, the plan of the first built would naturally be repeated in the others.

Although the claims for orientation as thus propounded would be dismissed by any legal judge or counsel, nevertheless an orientation exclusively sepulchral, without astronomical precision, and of simple explanation, does obtain in one class of prehistoric structures, namely long barrows with or without chambers or entrances. Of the recorded number in Wiltshire over 80 per cent. are oriented sunward, that is to some point of the compass between north and south through east, and this direction appears to be a general rule wherever these graves occur, though no complete collation has yet been made in respect of this feature. There is little doubt that the authorities are right who have referred this alignment to the sunward disposition of the entrance of the primitive dwelling.³ Conservatism in custom increases in duration as we recede in time, moreover 'the boundary-line between tomb and dwelling is . . . ill-defined in prehistoric times'.⁴ The sepulchral origin of Stonehenge can no longer be questioned, and Sir Arthur Evans has shown convincingly how the whole of its complexity may have been evolved from the simple hut. The traditional aspect of the hut-entrance is probably represented not by the disconnected Avenue, but by the wide sunward opening of the double 'horseshoe' of sarsens and blue stones. Mr R. S. Newall has written: 'The intentional orientation of Stonehenge is confirmed by the fact that the axis does not coincide with the middle of the causeway. Had orientation been

² Lukis, *Wilts Arch. Mag.*, xiii, 83.

³ Nilsson, *Primitive Inhabitants of Scandinavia*, pp. 124-158. Lord Avebury, *Prehistoric Times*, pp. 126-129. Sir A. Evans, *Proc. Soc. Antiq.*, ser. 2, xxxi, 191-192, and others.

⁴ R. A. Smith, *Proc. Soc. Antiq.*, ser. 2, xxxi, 144.

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of no importance, one would suppose that the Stone Circle would have been so built that its axis would correspond with the middle of the existing causeway of the older Aubrey circle'.⁵ This assumes that the Avenue is coeval with the extant building, but it may with some reason be assigned to its predecessor. That it is of very early date is proved by the space left for its passage in the line of the 'Old King' and 'New King' barrows,⁶ and it is so rudely engineered—it varies greatly in width throughout its course—that its non-coincidence with the causeway may only be due to a 'bad shot'. If, however, it belongs to the newer erection and the causeway faced the entrance of the older, the difference between their centres argues that the orientation of each building was sunward, but without the asserted exactitude of an axial line directed precisely to an astronomical point. The word 'axis', indeed, seems as comforting to the orientist as was 'Mesopotamia' in another connexion, but it is questionable whether the primitive architect was equally conscious of this property of his erection. And some little scepticism must be allowed as to the exact value of the term 'precise' so often applied to these lines of direction. Are we asked to believe that the Bronze Age surveyor had attained the precision of his modern successor to a fraction of a degree? A discrepancy of $2\frac{1}{4}$ degrees in an asserted equinoctial line of Woodhenge is dismissed as unimportant (*Woodhenge*, p. 11).

To recapitulate, orientation other than in one limited and scientifically explicable acceptation—calendar orientation or as predicated in any sense of round barrows or stone circles—has no sounder basis in objective fact or logic than had the Druidical, Dracontian, Phallic and other obsolete imaginings.

⁵ ANTIQUITY, March 1929, p. 88.

⁶ This inference was made by Hoare; see *Ancient South Wilts*, pp. 157–158, and map to face p. 170.

Dew-Ponds

by EDWARD A. MARTIN *

A GREAT antiquity has been claimed for dew-ponds, or rather for those ponds which have passed as such. They are found on the higher parts of the chalk downs of Southern England, and sometimes indeed on their very summits. They first came to be noticed by reason of the fact that in dry weather, when by all reasoning from their exposed position they ought quickly to dry up, they are the very ponds that still carry water, whereas other ponds on the lands below, which are fed by runnels and other drainage, are the earliest to suffer from drought. This is a very real distinction, for the old dew-ponds, to call them by their better-known name, have no drainage beyond the collecting area of their own banks. That observant student of natural history, Gilbert White, was almost the earliest writer to call attention (in the middle of the eighteenth century) to the ponds on the common above Selborne, which, although used for the watering of innumerable cattle and sheep, had never been known in his time to fail. His attempted explanation need not trouble us here, but it is noteworthy that he did not call them by the name of dew-ponds, and this name did not appear until well on into the nineteenth century. Pseudo-scientific people gave this name to something which they could not explain and so the mysterious dew-pond was christened. They still give it the same name, although those living in their immediate neighbourhood still know them as mist-ponds or fog-ponds. The worst of it is that the mystery of the dew-ponds is constantly cropping up in print, and it really seems as if the general public does not want to know the truth of the matter. Mystery always appeals to them and I fear that editors do not always desire to deprive their readers of its fascination.

Many of these ponds are found inside or in close association with earthworks. But the majority are not so found. Early archaeologists

* Author of *Dew-Ponds: history, observation, and experiment*. (Werner Laurie, 1914).

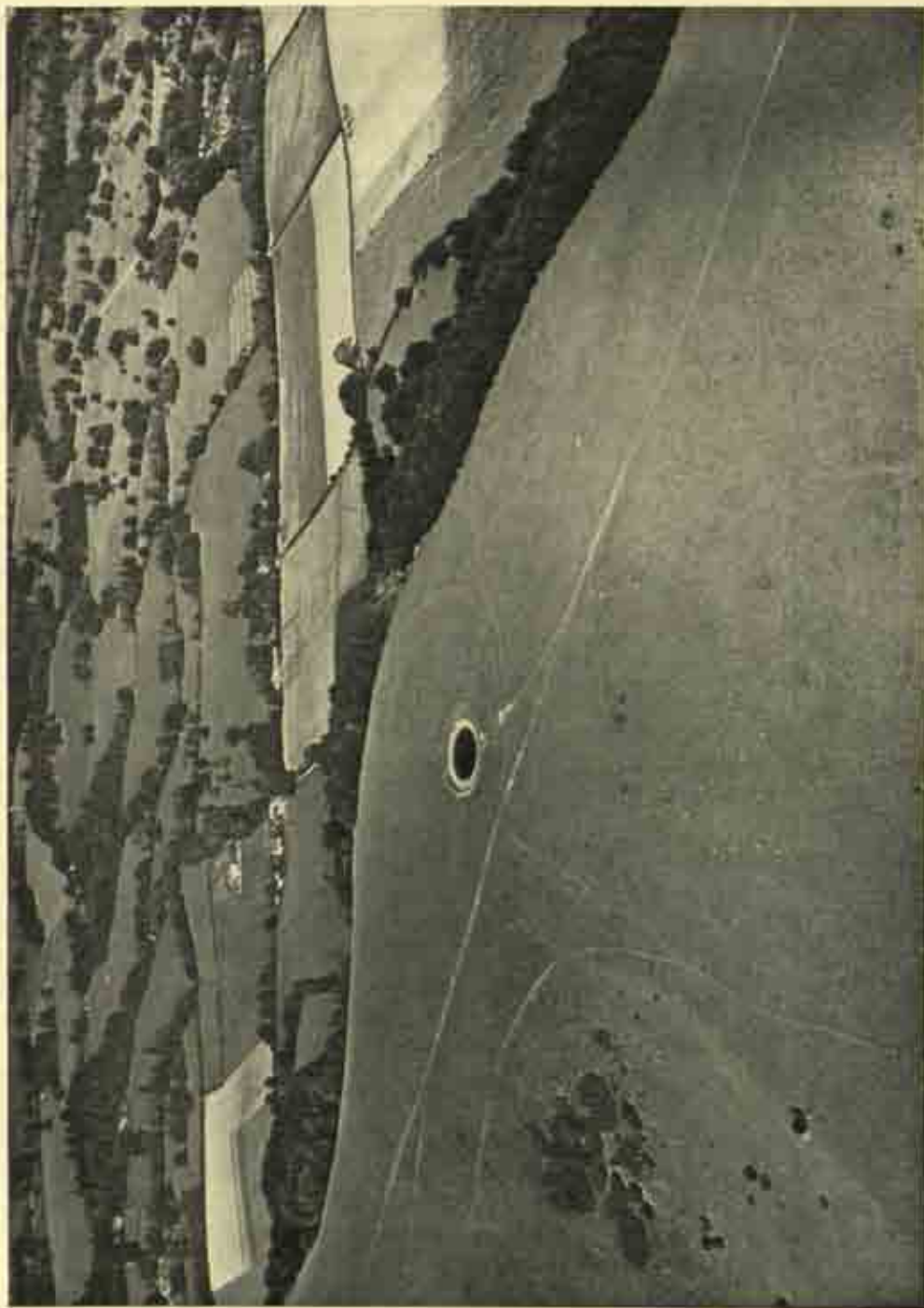
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were much concerned, as well they might be, to discover the source from which the inhabitants of earth-walled encampments drew their water. A certain quantity was needed, although we need not imagine that these early men in Britain washed themselves so frequently as modern men do. For drinking purposes and perhaps for cooking, rain-storage within the camp sufficed as a general rule. When this failed, it was necessary to have a reserve and so they fell back on their ponds.

An attempt has been made to show that neolithic man was the first to make and use these ponds, and he may have done so, but that is a very different thing from saying that he made the identical ponds that now exist. With the possession of cattle he would find that any spot much frequented by them would become so puddled that the spot would hold water. If driven at night through a narrow entrance to a camp, that entrance would soon become a quagmire, and so the puddled bottom of a pond would be revealed to him. This might have induced him to dig ponds elsewhere where they would be less of a nuisance, and so sometimes one is found within the enclosure. There is a pond some two hundred feet below the north side of Cissbury camp, but it is not worthy of the name of a dew-pond, as it is sheltered from the incoming southerly moisture-laden winds, and it is not to be imagined that the occupants of the camp would come down all that distance to carry up to the top the desired water, especially whilst they had the whole area of a large enclosed camp in which to make all the ponds they needed.

If neolithic man made these upland ponds, we may ask the question, why neolithic man only? Why not palaeolithic man? Boyd Dawkins used to say that neolithic man came over to England on dry land when the Channel did not exist. This has been questioned, but it is certain that at any rate the Channel could not then have been very broad where it is now narrowest. Palaeolithic man no doubt came over in many migrations when England was completely continental. He may have travelled up the river-system which then existed in the Channel valley and so reached the higher parts of the downs, which were then much the same as now, except that they extended across the Channel, and so found his way to the higher parts. He would have required a supply of water, and if there be anything in the argument that neolithic man made dew-ponds, the argument holds good also as regards palaeolithic man. He may have lingered about what we call the river-drifts, but he would welcome the safety of the high downs, from whence he could see his foes, human or animal. The antiquity

PLATE I



'DEW-POND' ON CHANTONHURY HILL, SUSSEX
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PLATE II



THE DEW-POND ON KILYMUR DOWN, SUSSEX
Pl. Edward A. Martin

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of the dew-pond may be great, but so, too, may be that of ponds which no one would call dew-ponds.

That there is a distinction between the higher ponds and the low-lying ones one must admit. In times before water-pipes were laid across the downs and farms in the hollows had to depend on ponds for their water, it was no uncommon sight to see the inhabitants going uphill for their water. The story about Jack and Jill may have had its origin in fact in the dim past, as I was the first to suggest some years ago in my paper read before the South-Eastern Union of Scientific Societies. These ponds were the purest, and they contained water when all other supplies had failed.

There are many round depressions on the downs which were no doubt once ponds. They are now grass-grown, and water is not retained by them. Some are quite close together, as though, when a pond had failed, the farmer made a new one in preference to taking the trouble to re-model the old one. When once a pond has been satisfactorily made, it seemed to the maker that it would always remain perennial and no further trouble would be taken with it. Another farmer comes along, and not knowing how or when it was made, finds that it is quite satisfactory without further attention. Meanwhile grasses are growing in the pond, and grass is gradually creeping down the banks. Rushes have perhaps appeared, and their roots are perforating the bottom. A third farmer enters into possession, and in course of time finds to his surprise that the water is draining away. So the pond is condemned and unless the farmer has other supplies he makes another pond. Or if he repairs the old one, he digs up all the grasses and with them scoops up the puddle from the bottom that has taken generations to collect. I have seen it laid in heaps at the side of the banks, where it soon dries up in the sun. Then the cleaned depression is left to fill itself, which it generally fails to do.

People who talk about dew-ponds always mention straw as possessing remarkable qualities in the making of a pond. In many of the cases of which I have collected particulars, no straw whatever has been used. In others it has been laid as a foundation under the puddled chalk or clay, and sometimes it has been laid on the puddle, in order to prevent perforation by the hoofs of cattle in its early stages. It is quite possible that straw under the puddle may be of service in a new pond, in its earliest stages, as it would prevent the rise of heat from the earth, and so to some extent eliminate a good deal of evaporation. But it could have but little after-effect, as straw soon

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disintegrates under the mass of puddle above it, and if it did not it would become so moist that it would act as a good conductor of heat. In the condition of chopped straw to which it is rapidly reduced it would have some effect in preventing slipping of the puddle near the edges of the pond. The straw which I laid under my experimental pond in the first year was found on digging it up twelve months later to have been so flattened as to have become a conducting layer, was very brittle, and had commenced to turn a peaty black.

Without attaching much credence to the remarkable stories of new ponds becoming filled in a single night, the fact remains that there is some recruiting agent which keeps them fairly well supplied in times of drought, when those at a lower level have ceased to hold water. First of all, of course rainfall is responsible for most of the water. Unfortunately the rainfall is least in the months when it is most needed, and when evaporation is greatest. My experiments made some years ago naturally began with a view to ascertain if dew had anything to do with their filling. I mean real dew, and not other forms of condensation from the atmosphere. A thorn-bush overhanging a pond will condense moisture which will drip into a pond. But this is not dew. Low-lying clouds and fogs, which are no doubt the real recruiting agents, cannot be classed as dew. Dew is produced on good radiators of heat, when those radiators have been reduced in temperature to below a certain point called dew-point. This is familiarly produced on grass in the evening after a hot day, through the rapid chilling of the layer of air in contact with the earth, and the condensation of the moisture which is rising from the soil. Grass, straw, and the like are good radiators of heat, and quickly receive dew. I need not enter into the question that sometimes arises, as to whether dew falls or rises. It is simply deposited. The moisture in the air may rise or it may fall, and so sometimes the dew is on the under surfaces and at other times on the upper surfaces of good radiators. The point to consider is whether it can ever be deposited on the surface of water already in a pond, or on the smooth surface of the chalky banks of the best-kept ponds. Sometimes the grassy surface of the bank has seemed to be quite moist with dew, but it would require a great amount of dew to be formed before it began to run down into the pond. Much of the moisture thus found on a bank sinks at once through the material of the bank. Any vegetation growing in a pond might add a small quota to the water in the pond, as long as the roots of such vegetation do not perforate the bottom. But the best-kept ponds are perfectly clear of

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vegetation, and we are driven to ask if the water-surface itself receives dew. This is not an easy problem to tackle. But repeated experiments showed that although the grass around was wringing wet with dew after night-fall, only on very rare occasions did the water-surface temperature go below dew-point. Taking July, August, and September as the months of greatest dew and least rainfall, and dewy nights as on the average one in three, there would be a possible thirty nights of dew. On each night there might be a possible six hours of dewfall, or 180 hours altogether. During the course of my investigations there was a possible five hours in those months when the surface water went down below dew-point.

Although fogs and mists are to my mind the critical factors in keeping ponds alive, these would be of little avail were it not for the rainfall. The rain-gauges that I kept on the top of the downs showed that rain was there precipitated some thirty per cent. more than in the Weald below. But apart from this increased rainfall, the great collecting area of a pond has often been overlooked. There is a level higher than which a pond never seems to rise. Above this there are the collecting areas of the banks, and in cases I have met with, the area of the surface of the water has to be trebled or quadrupled in order to arrive at the area of the banks. Nearly all the water from heavy rains runs at once down into the pond. When there are only moderate rains a good deal of the water goes through cracks, or goes to saturate the surface of the dry puddle, after which it begins to go down into the pond. Downland mists and low-lying clouds settle in hollows on the downs, and are the last to disappear thence. Although difficult of proof, I have no doubt that it is to these that we are indebted for the maintenance of ponds in the drier months.

One thing is certain. It is obvious that a pond can never receive any dew worth mentioning, and therefore there is no such thing in nature as a real dew-pond.

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ROMAN LIGHTHOUSES AT DOVER

By kind permission of Dr MORTIMER WHEELER, F.S.A., we are able to print a summary of his valuable article on 'The Roman Lighthouses at Dover', written by him for the forthcoming volume of the *Archaeological Journal*, to be published at the same date as this number of ANTIQUITY.

The first of the towers described is on the east cliff or Castle hill of Dover. During some repairs undertaken by the Office of Works in 1913-15 plans and sections of this pharos were prepared and these have enabled more definite conclusions to be drawn than has hitherto been possible. Earlier accounts may be found in the *History of Dover Castle* written by William Darell, chaplain to Queen Elizabeth, which was not published until 1786; in Stukeley's *Itinerary* (2nd edition), and in Gough's edition of Camden. A partial survey was carried out in 1872 by W. E. Peck and this was published in *Archaeologia*, vol. XLV.

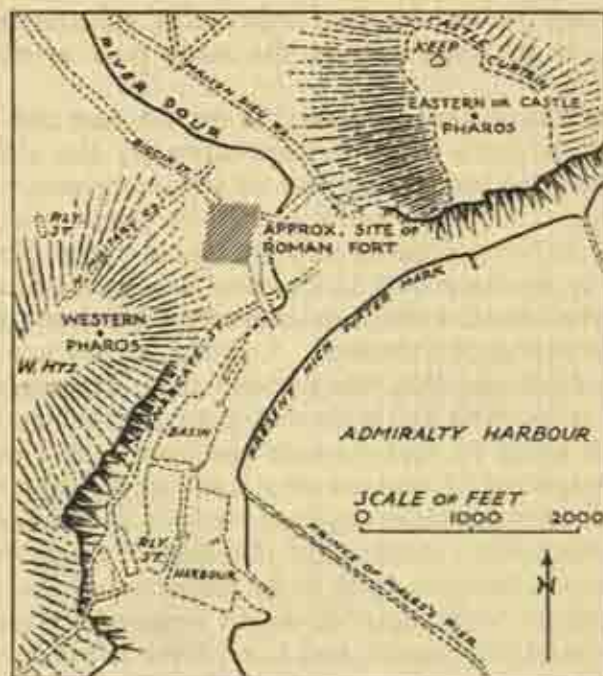
The tower is 13 ft. 10 ins. square on plan internally; it is octagonal externally, with sides 15 feet long at the base; and it still remains standing to a height of 62 feet, of which the uppermost stage, 19 feet, is medieval. The lower stages (43 feet) are four in number. Internally the walls rise vertically; externally the masonry was refaced in the middle ages and was battered back to its present outline. This sloping outline has hitherto been regarded as an original feature but Roman builders rarely used the batter, and the Dover tower is no exception. Most of the Roman facing-stones have disappeared but on the south side of the tower a part of the original vertical face of the plinth has been revealed, and the vertical, weather-worn face of the upper part of the first stage can be seen on the southwest side between the third and fourth brick-courses. The extent of the set-back of each stage—Roman work—is well seen on the southeast side, where the depth of the wall-recesses is reduced by a foot in each successive storey. The tower, therefore, had once a stepped or telescopic outline, which, if continued to a logical conclusion, implies an original height of about 80 feet.

The core of the walls is of rubble with strong white mortar; the facing is of green sandstone and tufa, held by pink brick-dust mortar

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and levelled externally at regular intervals of seven courses with double (rarely single or triple) courses of brick.

The main features of the internal arrangements are of interest. Each stage was floored with planking carried on two main beams of nearly one-foot scantling, held in square sockets in the north and south walls. The ground story was of the exceptional height of $17\frac{1}{2}$ feet and was entered by a doorway $9\frac{1}{2}$ feet high in the south side, which at the base was nearly 12 feet thick. In the northern wall was an arched



recess, 11 feet high, with a small arched window above. The purpose of this recess is not clear. The other storeys were from $7\frac{1}{2}$ to 8 feet high.

The old identification of this Roman tower as a lighthouse may be accepted without hesitation. Its position, 380 feet above the sea, made it visible from the Channel and useful as a guide to sea-traffic.

In discussing the probable date of the pharos Dr Wheeler refers to one at Boulogne, which stood until about 1644, but of which only a fragment now remains. This he suggests may have been of the first century A.D., but for the Dover Castle pharos he feels there is little basis even for conjecture, though there is some ground for thinking that

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a lighthouse on the Dover cliffs would have been necessary as early as the first century.

The second of the lighthouses described is the one which stood on the opposite side of the valley of the Dour, some three-quarters of a mile away on the Western Heights. It is mentioned by Leland, Lambarde, and Camden, none of whom refer to the Castle pharos. There can be no doubt as to the position of this western lighthouse for it is shown on a drawing of Dover harbour made about 1543, and now in the British Museum, and Dr Wheeler has also been fortunate in finding in a private collection a painting (which is reproduced) of Dover in about 1690 which shows the remains of the pharos at that date.

Lambarde calls this western tower 'the Bredenstone'; Camden names it 'Ara Caesaris' or 'Caesar's Altar'; Montfaucon, 'La goutte du Diable', and 'Devil's Drop' is used in English accounts of the 18th century. Its familiar names appear to have become 'Bredenstone' or 'Devil's Drop'.

Drawings made in 1760 show that the western pharos had lost all its dominating character and had become a formless mass of masonry. In 1805-6 even its remains were buried under some fortifications thrown up to meet the threat of invasion. In 1861 excavations for building barracks resulted in the pharos being once more brought to light and a photograph taken at the time is reproduced with the article. It shows beneath about 12 feet of mixed chalk and humus a rough projecting layer of cemented rubble, containing two or possibly three brick-courses. About the centre of the concrete is a depression, which is said to have contained charred wood and ashes. A sketch signed by the engineer in charge of the work in 1861 records that the total width of the masonry then exposed was 30 feet and its depth $9\frac{1}{2}$ feet.

The fortification is now known as Fort George or the Drop Redoubt—the latter name perpetuating the Devil's Drop beneath it. The Drop itself, imbedded in the stonework in 1861, shows merely as a long streak of Roman flint-rubble concrete surmounted by a tile-course. Overhead, on the surface of the redoubt, three chunks of the concrete, hewn off the foundation in 1861, have been set up in rough imitation of the fallen masonry which represented the stump of the pharos in the 18th century.

Two points remain to be noticed about this western tower. In the first place, it was built wholly or in part of re-used materials. The mixed character of the tiles and bricks used in its construction was noted in 1861; and "a large piece of Roman tile . . . of the kind

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found in hypocausts", extracted "from one of the horizontal courses of tiles which occurred in a counterpart, on the Western Heights, Dover, of the well-known Pharos" was presented in 1863 to the Society of Antiquaries of Newcastle-on-Tyne. Another flue-tile, taken from the structure in 1861, is now in the possession of Mr E. O. Hambrook in Dover. Furthermore, a flat block of ragstone found "embedded on its face in the mortar" was thought by Canon Puckle to be a fragment of re-used carving. In construction, therefore, the western pharos may be contrasted with the eastern, which seems to lack second-hand material. On the other hand, it conforms in every respect with the normal methods of the builders of the Saxon Shore defences at Richborough, Lymne and elsewhere; and may with reasonable safety be ascribed to the latter part of the Roman occupation.

'In the second place, whilst there is no definite evidence that the Castle pharos contained tiles with the CL(*assis*) BR(*itannica*) stamp, it is certain that such tiles were included in its western neighbour. One of them is now in the possession of Mr Hambrook; another is said to have been sent to Cambridge, but I have been unable to trace it. The tiles may indicate that the western tower was an official work of the Channel Fleet. But too much stress should not be laid upon this possibility, for tiles bearing this stamp occur abundantly in Dover and may therefore have been introduced into the tower with other second-hand material.

'There our present knowledge of the structure on the Western Heights ends. We know of this structure that it stood up as a tower, that it was possibly polygonal on plan and that the earlier antiquaries were unanimous in identifying it as a lighthouse. They were probably right. The only possible alternative is that it was a monumental tower-like tomb of a type common enough in the Roman world. A notable example of such a tomb has long been known on Mersea Island in Essex, and at Dover a Roman cemetery certainly lay along the foot of the heights upon which the western tower stood. . . . On general grounds, it seems likely that the structure was erected as a sea-mark and a watch-tower in those latter days when the Roman equivalent of the Dover Patrol was busy about the Kentish coasts. The name "pharos" may provisionally therefore, stand. The twin towers, on the heights flanking the Dover fortress, would serve not merely to "bracket" the harbour but would form a usefully distinctive feature amongst the coast-wise signals. Stukeley in his imaginary view of Dubra may more nearly have hit the mark than he sometimes did'.

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LOWLAND LONG BARROWS

As a key to the distribution of population in neolithic times long barrows are of great value. Most of them occur on high ground, and it has generally been assumed that the lowlands were but sparsely populated. It is high time to give up this habit of thinking in terms of upland and lowland. It was not elevation primarily that determined the choice of prehistoric man, but vegetation and water-supply. If a lowland region was open and free from trees, and if there was a good water-supply, then he settled there. The gravel flats of the Upper and Middle Thames valley satisfied these requirements, and have been thickly inhabited from the Bronze Age to the present day. It is certain that they were also inhabited—how densely we do not yet know—during the neolithic period. This is proved by the discovery of a habitation-site of neolithic type, with interrupted ditches, near Abingdon, together with neolithic pottery and other objects characteristic of the period. That this site belongs to the long barrow period is certain. It is even possible that a long barrow might actually have existed close by. During the dry summer of 1928 I observed (21 July) an oval brown mark in a field a quarter of a mile northeast of the neolithic settlement. It was so plain that I was able to measure it.¹ Last year, when the whole area was air-photographed, the marks were unaccountably absent. This year they are plainly visible again. I saw them when flying over Abingdon on 5 June, and it occurred to me that they might be the remains of the ditch of a long barrow. If so however it is not quite normal. They go round one end of the barrow, for instance, but so do some of the ditches round long barrows in Wessex. The ditch is also much narrower. The plan of the ditch is unlike that round any normal barrow that I know of; it has for instance no resemblance to the ditch of a twin barrow, which is egg-shaped. Excavation is badly needed, especially as the site will probably be built over or dug away before long. The site is 200 feet above sea-level.

I noticed a similar mark in a cornfield southwest of Stonehouse Farm, southeast of Kirtlington Park. There is nothing at all to be seen on the ground. The spot is 230 feet above sea-level.

An undoubted long barrow is still to be seen on the west side of the Banbury road, one mile west of Bletchington station. It stands on the boundary between the parishes of Shipton on Cherwell and

¹ Its dimensions were:—length (internal), 33 paces; breadth (internal), 12 paces; width of ditch, 3 to 4 paces. There was a gap visible in the ditch at the east end.

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Tackley and is called 'langan hlaew' (long low) in the bounds of that parish of A.D. 1005.² The barrow is called Long Banck on a map of Whitehill Farm of 1605,³ and it is still plainly to be seen. It is under cultivation, and has of course been ploughed very low, but it is still a perfectly recognizable mound, slightly more stony than the rest of the field. It is oriented ENE and WNW, and the east end is apparently higher and broader. Its length is 70 yards. In his schedule of Oxfordshire antiquities,⁴ Mr E. T. Leeds called attention to the possibility that this 'langan hlaew' might have been a long barrow. It was not known however where it was situated until the site was indicated by the aforesaid old map. It is about 310 feet above sea-level.

Another certain long barrow is one lying on a gravel flat between Bournemouth and Christchurch, Hants, not far from the confluence of the Stour and the Wiltshire Avon, in Holdenhurst parish (Hants, 86 NW, lat. 50° 45' 0" N, long. 1° 50' 5" W). It was discovered by Dr Clay. It stands in a ploughed field and is conspicuous by the colour contrast between the long mound and the rest of the field. Not far away there have been found remains suggesting a contemporary habitation-site. It is less than 30 feet above sea-level.

This is the only long barrow known to exist within the Tertiary regions of the Hampshire or London basins. If one had been asked to say where, within these two barren areas, a long barrow was most likely to be found, one would have unhesitatingly replied 'somewhere near Christchurch'. For here, as I long ago pointed out,⁵ must have been the port of Wiltshire. And not of Wiltshire only; for the Stour valley is a corridor leading to the populous downs of Dorset just as that of the Avon led to Wiltshire. Where the two routes converged, there one would be sure to find remains. But to find a long barrow itself was more than one hoped for, and Dr Clay is to be congratulated upon a discovery of more than usual importance.

O. G. S. C.

HADRIAN'S WALL

The following account by Sir GEORGE MACDONALD, K.C.B., is reprinted by permission from *The Scotsman*, 7 July:—

'One hundred and twenty-nine years ago, almost to a day, William

² Printed in *The Cartulary of Eynsham* (ed. H. E. Salter) I, 23.

³ Published in facsimile.

⁴ *Archaeologia*, LXXI, 227-65, based upon the Percy Manning MSS. See also my *Long Barrows of the Cotswolds* (John Bellows, Gloucester, 1925), p. 214.

⁵ *Geographical Journal*, 1912, p. 186. See also *American Geographical Review*, 1922, XII, 257-63.

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Hutton, born in 1723, bookseller in Birmingham and founder of the first circulating library, set out to see for himself "the greatest of all the curiosities left us by the Romans". July 4, 1801, witnessed his departure from his own front door. As he is careful to tell us, he was dressed in black, and carried over his shoulder a wallet "of the same material", which was filled chiefly with maps, and to which there was strapped a large green umbrella. Thus attired and equipped, he tramped through Lichfield, Warrington, and Liverpool, and thence to Ambleside, and over the Kirkstone Pass to Penrith and Carlisle. There he turned westwards to the end of the Roman barrier at Bowness-on-Solway, where he picked up the line, and followed it through Cumberland and Northumberland to the mouth of the Tyne. He then returned upon his tracks to Carlisle, "having crossed the kingdom twice, under a burning sun and without a drop of rain, in seven days and six hours". From Carlisle he made for home, taking the route over Shap Fell and so southwards through Wigan and Preston. The end may be described in his own words:—

"By easy marches I arrived at Birmingham, August 7, 1801; after a loss, by perspiration, of one stone of animal weight, an expenditure of forty guineas, a lapse of thirty-five days, and a walk of 601 miles".

It was an astonishing feat for a man of 78. The wonder grows when we learn from his daughter that from first to last he never changed his stockings. A cynic might add that the Society of Antiquaries of Scotland had shown rare discernment when they made him a member in 1782.

In the preface to the account of his journey Hutton wrote with pardonable pride:—"Perhaps I am the first man that ever travelled the whole length of this Wall, and probably the last that ever will attempt it. Who, then, will say he has, like me, travelled it twice!" He reckoned without Dr Collingwood Bruce. In 1849 that well-known Northumbrian antiquary led a band of enthusiasts from Wallsend to the Solway. It is a significant indication of a change in the point of view that Bruce should have provided himself, not with a green umbrella, but with a pilgrim's staff, fashioned from one of the oaken piles which had supported the bridge thrown over the Tyne by Hadrian seventeen centuries before. The pilgrimage was such a success that it was more than once repeated at intervals of several years.

In 1886 those interested decided to make it a decennial event, and the sequence continued unbroken until 1916, the July of which found all

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Tyneside, either in body or in spirit, on the Somme. The thread was resumed in 1920, so that the doings of last week represent the second of a new series of celebrations. *Tempora mutantur*. It is a far cry from the green umbrella and the single pair of stockings to the thermos flask and the internal combustion engine. But even Bruce would have been hardly less astonished than Hutton, could he have seen the long line of motors, stretching in close order over more than a third of a mile, as they sped westwards conveying the pilgrims of 1930 to the various points of vantage.

'It was indeed a notable gathering, and that not merely in respect of size. Serious students of Roman Britain were there from every part of the country, and Germany sent a delegate from Mainz in response to an official invitation. From beginning to end the organisation was admirable. On Monday evening Mr R. G. Collingwood, of Oxford, who had written a compact little *vade-mecum*, which was put into the hands of every pilgrim, gave a lucid introductory lecture in Newcastle. On each of the next four days a section of the Wall was covered, the programme being arranged with such skill that there was no undue hurry anywhere and yet nothing of importance was missed. Time was even found for a visit on Friday afternoon to the signal-stations erected on the Cumberland coast as a precaution against a flank attack from overseas. Wherever a halt was called, one or other of the experts best qualified to speak was in attendance to give verbal explanations and to answer questions. Every now and again a bit of excavation, designed to elucidate a particular problem, had been carried out and the ground left open, in order that the pilgrims might appreciate the methods by the patient application of which our knowledge of the Wall has been in recent years so enormously extended.

'Lastly, by some happy chance, the joint-committee of the two Societies responsible had succeeded in squaring the Meteorological Office. Except for some showers on Friday morning, the weather was perfect throughout. It was specially brilliant on Thursday, the afternoon of which included the magnificent walk from Great Chesters to Carvoran. Under such conditions even the least emotional could hardly fail to be stirred by the feelings to which Haverfield has given such eloquent expression:

"Here the remains of ancient splendour abide in bold characters. Forts stand visible on the hillsides, lifting above the grass the masses of their stubborn masonry; the Wall itself still rises shoulder-high for hundreds of yards together; nature and man combine in a

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unique landscape. As you look east and west, and trace the long line winding for miles from end to end of perilous ledges, and climbing from hill to hill, as you turn south to the Tyne and the dark fells beyond it, or north to long flat wastes and pathless mosses, the vision of a great Empire rises. Here, on the uttermost limit of the Roman world, the desolate land has been stamped for ever with the sign of its former lords. On these high moors we can realise, almost more clearly than in the Forum of Rome, the secret of that defence by which Rome guarded the fabric of civilisation through the long menace of darkness and dissolution".

'With such words fresh in one's mind, it may well seem incredible that Hadrian's Wall should be in imminent danger. Yet there is no manner of doubt that it is. The protesting voices that made themselves heard a few weeks ago have been far too easily lulled into silence. In essence the issue is simple in the extreme; it is a matter of comparative values. For one who is uncompromisingly on the side of the angels, it would be as easy as it would be idle to say hard things of the promoter of "Roman Stone Limited" and to wax indignant over the ill-omened name he has been frank enough to select for the company he proposes to float. But his case was put to me fully, even sympathetically, only three days ago by one who knows it well, and I was forced to admit that, given his point of view, there is no answer to his arguments. The real question, however, is whether the public are prepared to make that point of view their own. If they are, then there is no more to be said. If, on the other hand, they believe that this unique national monument, with the matchless landscape in which it is set, is a possession which no money could buy and which no expenditure, however lavish, could replace, then it is for them to set politics aside and to insist through their Parliamentary representatives that the necessary steps for its protection shall be taken forthwith. I went to Newcastle with vaguely comforting rumours of negotiations ringing in my ears. I did my best to follow these up. But the nearer I got to the heart of things, the more nebulous did the negotiations become. The sponsors of the quarrying scheme are animated by the best intentions, and one need not call in question the sincerity of their assurances that they mean to spare the Wall itself. Nevertheless I speak of what I know when I say that, once the process is begun, the ultimate result is inevitable. Unless the plague be stayed, the Pilgrims of 1940 will find that their way leads through the Valley of Humiliation. It will be too late then to remember that at the end of this Valley is another, called the Valley of the Shadow of Death'.

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GLOZEL AGAIN

We have received a letter from Count Bégouen, Professor of Prehistory at Toulouse, with regard to the reference to him made by M. A. Vayson de Pradenne in the article on the Glozel forgeries in the June number of ANTIQUITY. Count Bégouen writes:—

Dans son article si intéressant et si documenté sur Glozel, M. Vayson de Pradenne me cite (p. 211) comme étant de ceux qui feraient parte, à la suite de l'éminent historien Camille Julian, du groupe des Glozéliens schismatiques. Or je n'ai jamais admis que Glozel peut être préhistorique ou même néolithique et j'ai été des premiers à oser le dire. Mais sous l'influence d'un maître admiré et aimé j'en étais arrivé à m'imaginer reconnaître des caractères et des mots latins dans les signes grossiers de Glozel. À la suite de l'étude des publications du Dr Morlet j'éprouvais des doutes de plus en plus sérieux que l'article de M. V. de P. au Société préhistorique française transforma en certitude. Puis vinrent les observations de M. Dussaud, d'autres, encore. Depuis lors Glozel n'a pas eu d'adversaire plus résolu et ardent que moi, ainsi qu'en témoignent mes brochures et mes nombreux articles de polémique. Cela m'a valu assez d'attaques et d'injures pour que je tiens à revendiquer ma place au premier rang des antiglozéliens.

It will be seen that Count Bégouen does not contradict any of M. Vayson de Pradenne's statements.

THE CITY OF CUNOBELIN

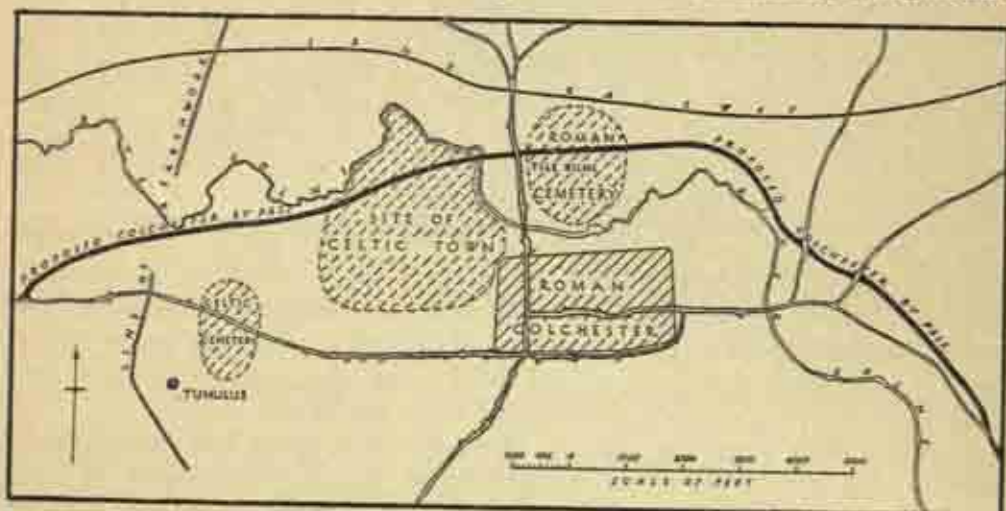
The following is abridged from an appeal recently circulated for the excavations which have become necessary on the site outside Colchester (see plan), where Cunobelin, the British king, had his capital and minted his well-known coinage. Celtic *totens* before the Roman conquest were few, and seem to have been the work of the Belgic invaders of the 1st century B.C., either on fresh sites or as enlargements of smaller existing settlements, as probably at Colchester. No more historic site is to be found in our country than this, the seat of successive British kings, captured by the Roman Expeditionary Force under Claudius himself, and thereafter superseded by the colony that was the first objective of the rebellion of Boudicca.

Up to the time of going to press the first results of the work prove that the claims that have been made are in no way exaggerated. The excavations are being carried out scientifically, and the material is

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abundant, providing, in particular, striking evidence of the effects, for half a century before the conquest, of the commercial influence of Rome. The opportunity for this important work of research is not going to last long, and once gone it can never recur; thus the need of financial support is exceptionally urgent.

The town of Colchester is the recognized successor of the Roman Camulodunum, the senior colony of the Province of Britain, and one of its leading cities. It has long been known that on the north and west of the town there exist not only a large cemetery and industrial buildings belonging to the Roman colony, but also extensive remains of a great pre-Roman settlement defended by a series of formidable earthworks.



The evidence is clear: Roman graves and kilns have constantly been attested on the left bank of the river Colne, while on the right bank British coins, pottery, and other relics of intensive occupation are found over a wide area. The Colchester and Essex Museum already possesses a fine collection of these, and they fully confirm the belief that here stood the capital city of King Cunobelinus—Shakespeare's Cymbeline—the great chieftain of Belgic stock who ruled over all southeastern Britain for about the first forty years of the first century A.D., and brought the Celtic civilization of this country to its highest level of achievement.

The founding of the adjacent Roman colony within seven years of the conquest of A.D. 43 inevitably ended the life of this, the richest and most important native centre in the whole island, and, as the site has since remained unoccupied, an extremely valuable and practically

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undisturbed body of material awaits the archaeologist. It is fully anticipated that the discoveries will form a basis for the study of the native culture at the height of its development, and assist in solving the problem of its interaction with the Roman influence.

'The question of excavation has suddenly become urgent, for, under the sanction of the Ministry of Transport, the building of the new Colchester by-pass is being undertaken this summer. This road, eighty feet wide and three-and-a-half miles long, beside which houses will soon spring up,* is already being driven right across the British settlement and over the Roman cemetery and buildings.

'The work of excavating the threatened area (begun on 16 June), is under the general direction of Mr J. P. Bushe-Fox, F.S.A. The Trustees of the British Museum have lent the services of Mr Christopher Hawkes, of the Department of British and Medieval Antiquities, and Mr M. R. Hull, the Curator of the Colchester and Essex Museum, will take an active part in the supervision. The Oxford University Archaeological Society is also being responsible for a part of the work under the direction of Mr J. N. L. Myres, F.S.A.

'The work must be carried out systematically and on an adequate scale, which will be impossible without a large measure of financial support. The occasion clearly demands an exceptional effort; the crucial importance of the site is manifest, and as the area from which detailed evidence must be recovered by the spade is more than two miles in total length, the undertaking is no slight one'.

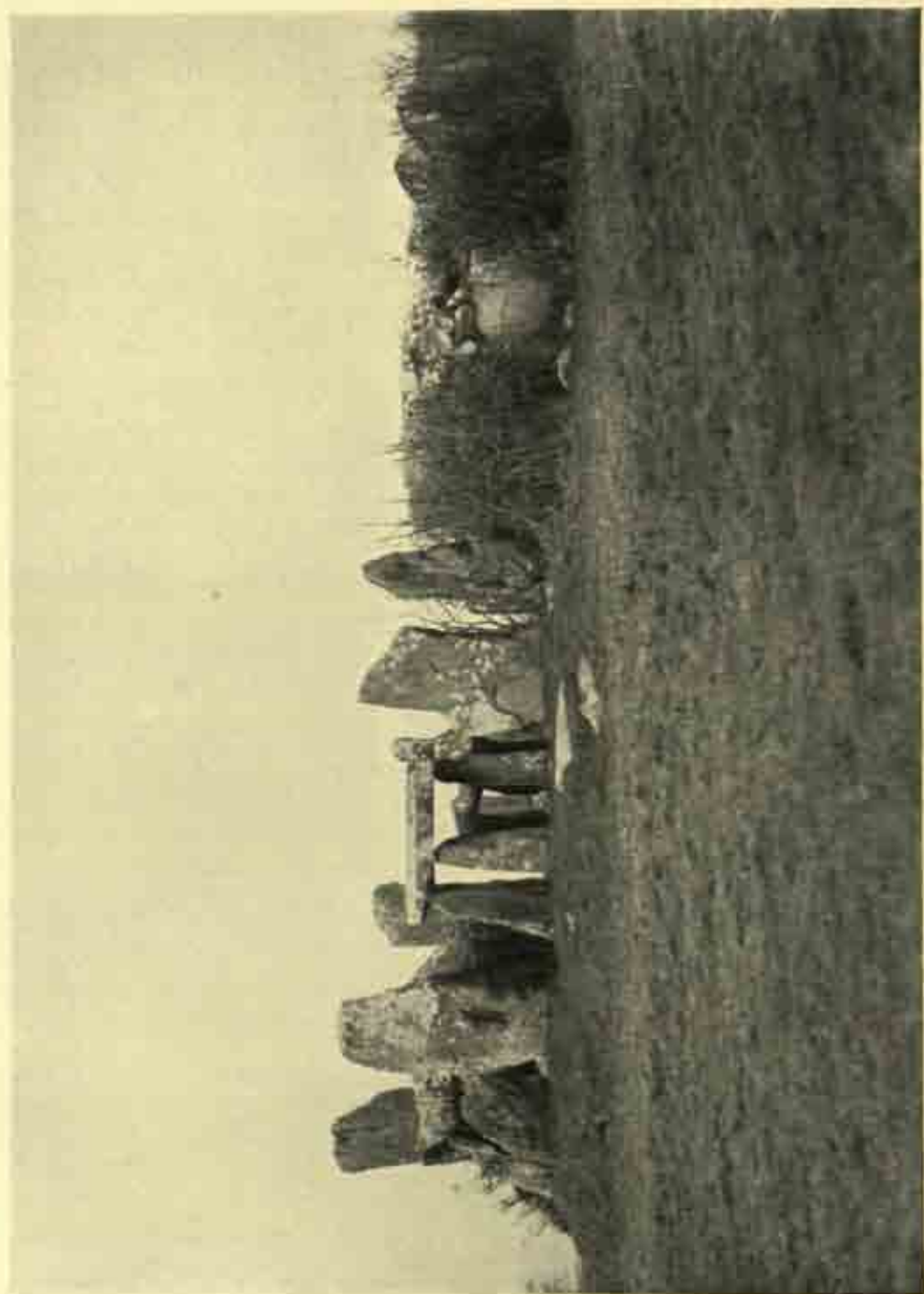
Altogether, £2000 is needed, of which about £900 has already been subscribed. The end of the work is by no means yet in sight, and we cordially support the appeal for more subscriptions, which should be sent to the Hon. Treasurers, Colchester Excavation Committee, Barclays Bank, Colchester.

AN UNKNOWN MEGALITH

The plate reproduced opposite is from a photograph which must have been taken about 50 years ago and is kindly sent to us by a subscriber to *ANTIQUITY*. We shall be glad if any of our readers can identify the monument.

It is not impossible that it represents a chambered monument of a type well known in Cornwall, Ireland, Brittany and the Iberian Peninsula, but a foreign location for the photograph is improbable.

* If that is to happen—and it should not be allowed—what is the good of making the by-pass at all?—EDITOR.



AN UNKNOWN MEGALITHIC MONUMENT
From a photograph taken in the 19th century

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

The excavations at Ur were closed for the season on 18 March. In a communication to *The Times*, 13 May, p. 15, Mr C. L. Woolley described the remains of a temple built by Nebuchadnezzar found on the east side of the line of the canal where it enters the harbour. The preservation of the building is remarkable. It stands nearly 20 feet high and the mud-brick walls still retain their plaster and coat of whitewash.



An Expedition financed by the Percy Sladen Memorial Fund and directed by the British School at Athens, has completed the excavation of a prehistoric site in Western Macedonia, on the south bank of the Haliakmon. From the pottery found it appears there were three phases in the history of the site and that it was occupied from Neolithic times until the Early Bronze Age. A report is printed in *The Times*, 16 May, p. 15.



Encouraged by the success of the exhibition designed to illustrate Romano-British art, held last December, the Burlington Fine Arts Club has recently arranged one representative of Art in the Dark Ages (c. 700-1000). The principal exhibits are briefly described in *The Times*, 20 May, p. 14, and an illustrated article by Mr Reginald A. Smith is in the *Burlington Magazine* for July.



In collaboration with the State Museum at Constantinople Mr D. Talbot Rice has been working on the ruins of the Myrelaion, a 10th-century church filled with rubbish to the tops of the columns supporting the roof. (*The Times*, 21 May, p. 15). We hope to publish an account of Mr Rice's work in an early number.

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The site of a small Norman castle of 12th or early 13th century has been found on Camp Hill, in Lydney Park, Gloucestershire. (*The Times*, 31 July, p. 11).

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Recent work at Knossos includes the discovery of an outer entrance system to the Palace on the western approach to the site, the remains of a fortified entrance camp having been found. There are also remains of two more of the circular pits filled with sherds illustrating the finest ceramic work of the Middle Minoan period. These and other features of interest are reported in *The Times*, 20 June, p. 15.

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A report on the third season of the Brunton Archaeological Expedition to Egypt on behalf of the British Museum shows that the results have been of particular interest. The most important discovery was a temple, near the village of Matmur, built by Rameses II in honour of the god Set. This and other finds are described by Mr Brunton in *The Times* of 24 June, p. 10.

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The Government of Gibraltar are taking steps to establish a Museum of objects of archaeological interest relating to the Rock. With the help of 'The Gibraltar Society', one of whose aims is to assist in this particular project, it is hoped that a representative collection will be made, and the Governor of Gibraltar appeals in *The Times* of 5 July (p. 12) for help from those who may possess such objects.

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The Near East Research Mission of the University of Michigan has been working this year at Karanis, in the Fayyum. The temple site of Pnepheros and Petesuchos has been cleared. (*The Times*, 12 June, p. 13).

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The Italian Mission in Egypt, directed by Prof. Giulio Farina and Prof. Giovanni Marro, has completed the examination of the region round Gebelein, and in the desert near El Gherera North they found a pre-dynastic cemetery with 200 tombs, a few of which were of the first dynasty. There is claimed to be evidence of a racial element with special characteristics differing from those of the historic period. (*The Times*, 12 June, p. 13).

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The annual Congress of the South-Eastern Union of Scientific Societies was held at Portsmouth in June under the Presidency of Mr O. G. S. Crawford. There was a good attendance of members of affiliated societies and papers were read before the various sections and the Congress as a whole. Excursions were made to places of interest.



The first 'flint mines' to be found in Wessex have recently been discovered not far from Salisbury by Dr Stone, who has excavated one of the shafts and found many flint axes and other remains. A full account will be published in due course.



A special article on the pre-Roman settlement at Colchester and the subsequent Roman occupation of Camulodunum was published in *The Times*, 24 May, p. 13. Emphasis is laid on the importance of the proposed excavation of the site of the Celtic town, through which—and also the Roman cemetery—a by-pass road is to be constructed.



Excavations have been resumed during August in the neolithic and Iron Age camps at the Trundle, Goodwood, under the direction of Dr E. Cecil Curwen.



Something that seems remarkably like a dolmen has now been reported from what was once German East Africa. A native, questioned by a missionary about the oldest things he knew, described some Ndwika stones (as they appear to be called). One, near Namitema, stood on three legs, like a stool. Another, of which a photograph is reproduced (in *Central Africa*, the monthly magazine of the Universities' Mission, vol. XLVIII, May 1930, p. 93) is near Lulindi. 'The large flat stone stands not on another stone but on an ant-hill. The top is piled up with little stones, almost certainly put there by people as offerings to the spirits'. We wish to thank one of our readers for kindly drawing our attention to this interesting note, and at the same time to ask our East African readers to try and obtain for us photographs of some of these monuments for publication.



Reports have appeared of the excavation of a prehistoric city claimed to be Sodom. It is situated 'on a plateau between the Wadi

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Gharbeh and the Wadi Djarafa in the region called 'Teleilat Ghassul'. It is said to have been 'destroyed by fire at the close of the first Bronze Age and never rebuilt'. (*Catholic Herald*, 31 May and *The Times*, 23 July). Further and more exact information is obviously desirable.



Mr J. H. Craw has been excavating a broch at Evie in the Orkney Islands. (*Scotsman*, 12 June).



A human skull of peculiar character has been found in a 12th-century graveyard at Gardar (Igaliko) in Greenland. It is regarded as a case of acromegaly—an atavistic reproduction of some of the most characteristic features of Neanderthal man. (*Times*, 6 May, p. 13).



Dr Campbell Thompson's excavations at Nineveh have been continued and, thanks to the generosity of Sir Charles Hyde, at least two seasons' more work on the site is assured. The results of last season's work are published in the *Birmingham Post*, 17 April.



It is claimed that the little village of Blewbury in Berkshire is still partly enclosed by mud walls of Saxon origin. If this were so it would be a unique survival, but we fear it is not. However, we do hope that, whatever their age and purpose, they will not be allowed to fall into ruin for lack of a little timely care. (*Daily Telegraph*, 7 April).



Mr and Mrs Cunnington have located the site of the Sanctuary (so called) on Overton Hill (also called Seven Barrows Hill) near Avebury, Wilts. Here stood two concentric circles of rough Sarsen stones, at the southeast termination of the Kennet avenue. The deliberate destruction of them was begun in Stukeley's day, but not before he had time to make and publish a drawing of them; and the existence of the circles was of course already known even then from Aubrey's 17th century plan. The present excavations, however, have not only placed the remains on the map again, but have discovered all the stone-holes and a series of post-holes. We shall not attempt to say more until the official account appears; meanwhile we wish to record as a news-item the completion of a very satisfactory piece of scientific excavation.

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Dr Von der Osten (whose preliminary travel-report has already been noticed in *ANTIQUITY*, June 1930, p. 271) is now excavating a Hittite site at Giaour Kale, near Konia. (*Morning Post*, 10 June).

In a recent interview Sir Flinders Petrie stated the ultimate aims of archaeology concisely, as follows:—

‘The value of archaeology is to discover the histories of other nations, to bring to light the reasons why they became powerful and why they fell. Our work is to provide the world with data to avoid the mistakes of those who have gone before us. We have revealed the fall of the Romans and the causes for that fall, and we present the results of our investigations to the Governments of today. They must act upon them’. (*Birmingham Evening Despatch*, 19 June).

We do not usually record personal or social events in this journal, but we cannot omit a reference to the jubilee dinner given by Mr Robert Mond to celebrate the completion of 50 years’ research by Sir Flinders Petrie. It was a great occasion, most happily staged, with a minimum of speechifying and a maximum of pleasant informal intercourse. It was, one felt, essentially a gathering of workers assembled to do honour to the doyen of their profession.

In the present number we publish a paper by Mr Leslie Mitchell on South American archaeology. We had long been trying to obtain an article on this subject, but hitherto without success. We hope to publish in forthcoming numbers other articles by Mr Mitchell on branches of the same subject.

Mr R. BROOM, of Grahamstown, South Africa writes to *Nature* (31 May, p. 814):—‘The little fossil ape skull that was found at Taungs five years ago is, in the opinion of many, the most important fossil ever discovered. It is manifestly the remains of an anthropoid ape somewhat allied to the chimpanzee, and of about the same size. But it differs from both it and the gorilla in a large number of characters, and in almost all these characters it resembles man. It thus seems highly probable that it is very near to the ape from which man sprang, and possibly a representative of the very genus. One difficulty has been our ignorance of the age of the cave deposit. The bone breccia found

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in most caves has proved to be of Pleistocene age, and if the Taungs cave is also of this period, then *Australopithecus* would be too recent to be a possible human ancestor, as man is known to have existed in the Pliocene'.



From a careful scrutiny of the animal remains in the associated bone breccia, however, Mr Broom is inclined to favour an earlier date, and he concludes :—' As no forms exactly similar to those of this breccia are known from elsewhere, we cannot, of course, determine the age with certainty. As, however, all the mammals are extinct forms, the evidence is strongly in favour of the deposit being Pliocene, and I think quite likely it will prove to be Lower Pliocene'.



The discovery along the banks of the Yellow river in East Shensi of palaeolithic implements resembling the Mousterian culture associated with Neanderthal man was announced at the annual meeting of the Chinese Geological Society by Père Teilhard de Chardin, the French palaeontologist, who, with Père Licent, found traces of a similar culture on the borders of the Ordos desert in 1923. (*Manchester Guardian*, 3 June).



The French Government has made a grant to enable the ruins of Tanis, the great city of the Delta, to be explored. M. Pierre Montet, the excavator of Byblos, is to be in charge. It is expected that much light will be thrown on the Hyksos period and on the sojourn of the Hebrews in Goshen. The city declined in importance when the river which flowed by it ceased to be a main waterway ; and the surrounding country, which in ancient times was rich pasture ground, is now salt marsh and lake. (*Scotsman*, 30 May).



According to latest reports from Nuzi, in Iraq, where a joint expedition of Harvard University and the Baghdad School has been excavating under Mr R. F. S. Starr, director, several interesting and important finds have been made belonging to the Iron Age (from 1200 B.C.). The inside walls of one room have been found to have been richly decorated three times in colour, the first paint being on the mud bricks themselves, and the two redecorations on a thin plaster spread over the older paint. The colouring includes the conventional Nuzi special design in red, black, and grey. (*Scotsman*, 4 July).

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The third campaign has now been commenced at Tell Beit Mirsim, which is supposed to be the Biblical Kirjath-sepher ('the city of books'). Recent discoveries, such as those of the stele of the serpent-goddess, found in the fourth stratum from the top (1600 B.C.), and the seal impression of Eliakim, servant of Joiachin (Yokin), belonging to the year 597 B.C., give reason to expect equally important ones in the course of this third campaign. It has been conjectured from the name Kirjath-sepher (also called Debir) that old archives were kept here. (*Scotsman*, 4 July).

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Professors Lake and Blake, of Harvard University, and Professor Butin, of the Catholic University, have gone on an expedition to the Sinai Peninsula in search of more proto-Sinaitic inscriptions. A note from Professor Butin from Beirut (dated 4 April) reports a successful trip with the discovery of twelve new fragments of the ancient script, and also many Egyptian inscriptions. (*Scotsman*, 4 July).

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The prehistoric collections of the British museum have been enriched by an early Celtic chieftain's outfit of a gold torc and pair of bracelets, which resemble a set found near Bingen on the Rhine and datable to about 380 B.C. This set shows an attempt by the Celtic goldsmith to imitate the classical palmette. It will be remembered that Titus Manlius Torquatus took a torc in battle from a Gaul in 361 B.C., thence deriving his name Torquatus.

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A reader in Assam writes :—

'On page 51 of your March issue Dr Curwen finds it strange that Neolithic pots should have had round bottoms. I mentioned this to a friend, who pointed out the great majority of earthen-ware or brass pots made in this part of India and likely to be used over a fire are furnished with round bottoms. Wood and reeds are practically the only fuel used, laid flat on the ground or in a very shallow depression. Three stones or lumps of earth, or three pegs of green wood support the cooking utensil over the fire, and naturally the rounded bottom fits between the supports right down on top of the fire, a convenience when cooking is carried on in the open air without protection from draughts'.

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. Books are occasionally included.

Die Gliederung des Eiszeitalters in Europa, by Fritz Machatschek. *Wiener Präh. Zeitschrift*, 1930, xvii, 1-16. Bibliography of 47 references.

Beiträge zur Kenntniss der Aurignacienkultur Bessarabiens und der Bukowina, by Czeslaw Ambrozewicz. *Wiener Präh. Zeitschrift*, 1930, xvii, 17-45. Fully illustrated and documented.

Offa's Dyke: a field survey; fifth report: Offa's Dyke in the mountain zone, by Cyril Fox and D. W. Phillips. *Arch. Camb.* 1930, LXXXV, 1-73.

A further instalment of Dr Fox's admirable and methodical survey, which is now rapidly nearing completion.

The Roman legionary fortress at Caerleon in Monmouthshire: report on the excavations carried out in the eastern corner in 1929, by Christopher Hawkes. *Arch. Camb.* 1930, LXXXV, 144-96.

The excellent work being done on the Welsh marches needs no commendation to readers of ANTIQUITY. Mr Hawkes's report is a model of thoroughness and lucidity; and is an example of the kind of results that can be obtained by modern scientific excavation.

Some aspects of the post-glacial history of British forests, by G. Erdtman (University of Stockholm). *Journal of Ecology*, Feb. 1929, xvii, 112-26.

A probable source of the material of some Wiltshire prehistoric axe-hammers, by G. H. Engleheart. *Wilts. Arch. Mag.* 1930, XLV, 73-4.

Suggests that some of them were made from the pebbles of Chesil Beach, a shingle-bank extending along the southwest coast of Dorset from Bridport to the Isle of Portland. Good evidence is cited in support.

Probleme der ägyptischen Vorgeschichte, by Fr. W. Freiherrn von Bissing. *Archiv für Orientforschung*, 1928-9, v, 49-81.

Treats of the alleged dependence of Egyptian upon Sumerian civilization and concludes that it is illusory. His conclusions will be contested.

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[The following are selected from a list published in THE AMERICAN JOURNAL OF ARCHAEOLOGY, 1930, XXXIV, 198—where short summaries are given. The titles given here are descriptive only].

Chronology of the Age of Hammurabi according to the latest investigations, by J. B. Schaumberger. *Biblica*, 1929, x, 332-62.

The following dates, based upon the observations of the planet Venus recorded in a document of Ammizaduga's reign, have been suggested for the beginning of the reign of Hammurabi:—2123 B.C. (Scheil, 1912); 1947 B.C. (Kugler); 1955 B.C. (Weidner); 2003 B.C. (Schoch and Thoreau-Dangin); 2067 B.C. (Langdon, Fotheringham and Schoch). Schaumberger supports the date 2067 B.C. by a mass of astronomical and historical evidence, and regards it as now definitely established.

Whence came the Sumerians? by G. A. Barton. *Jour. Amer. Oriental Society*, 1929, XLIX, 263-86.

The author thinks that the Sumerians were descended from dolichocephalic men of palaeolithic times, who had survived in some mountain fastness far from the Hamitic-Semitic centre and had developed an entirely different language. Oman is suggested.

The Habiri of the El Amarna tablets and the Hebrew conquest of Palestine, by G. A. Barton. *J.B.L.*, 1929, XLVIII, 144-8.

The archaeological and biblical evidence agrees in suggesting two Hebrew invasions of Canaan, one in the period of the El Amarna letters, the other about 1200 B.C.

Recent discoveries at Jerash, by J. W. Crowfoot, Director of the British School of Archaeology in Jerusalem. *Discovery*, April 1930, 107-110.

The Underground Cisterns of Constantinople, by S. Casson. *Architectural Review*, October 1929, pp. 167-71. 11 illus.

An interesting account of a curious subject. Mr Casson describes how he and Professor Tilley discovered a new cistern by descending a well on a rope-ladder.

Air-photography: part I. Organization and training (1s 3d); II. Theory and practice (4s). Air Publications, nos. 1354 and 1355. H.M. Stationery Office, 1929.

An engraved bronze mirror from Nijmegen in Holland, with a note on the origin and distribution of the type, by G. C. Dunning. *Archaeological Journal*, 1930, LXXXV, 69-79.

The origin of British mirrors is traced from a Greek prototype imported into the Celtic area in the 5th century B.C., probably along a trade-route from Massilia. Their development fits into the scheme for Celtic coins and other objects summarized by

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Déchelette (*Manuel*, II, 1560): (1) importation of Greek prototype along trade-route (2) copy, at first exact, of this prototype by a native craftsman (3) transformation into Celtic style (4) degeneration. Mirrors illustrating each of these four stages are dealt with; their distribution is shown by a sketch-map and schedule of finds, consisting of 20 instances; and a Romano-Celtic cultural connexion is demonstrated between Britain and the Rhineland. An important paper.

The Glacial conditions and quaternary history of North-east Land, by K. S. Sandford. *Geographical Journal*, December 1929, LXXIV. Offprint with separate pagination illustrated by oblique air-photographs, not all of them equally instructive.

The early castles of Mar (first paper); by W. Douglas Simpson. *Proc. Soc. Ant. Scot.* LXIII, 102-38.

Socketed and looped Iron Axes from the British Isles, by Herbert N. Rainbow. *Arch. Journ.* (published February 1930) LXXXV, 170-75.

The writer was lucky enough to pick up one of these axes on the foreshore of the Thames opposite Sion Park. His remarks on them are of considerable interest. Only eleven have been found in this country, and there can be little doubt that the type, obviously modelled on the bronze prototype, was soon superseded by the form more suited to the material.

Homer's use of the Past, by H. L. Lorimer. *Journal of Hellenic Studies*, XLIX, part 2 (1929) issued in February 1930, pp. 145-59.

A most interesting study, showing that Homer wrote of things that had passed out of use at the time he lived. The conclusions reached agree with the view, generally accepted on other grounds, that the Homeric epics represent the culmination of a literary cycle whose earlier products have all been lost. That the *Iliad* contains an echo of still earlier conditions is suggested by Dr Curwen in *ANTIQUITY*, IV, p. 50.

Alte und neue Ziqqurat-Darstellungen zum Babelturm-Problem, by Theodor Dombart. *Archiv für Orientforschung*, 1929, V, 220-29.

The Anatolian Goddess Kubaba, by W. F. Albright. *Ib. id.* pp. 229-231.

Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society. New series, volume XXIX, 1929. Editors: R. G. Collingwood, T. H. B. Graham, W. T. McIntyre. 303 pp.

This volume, a model of its kind, contains a number of good articles, several of them by the Editors. Perhaps the most valuable contribution is the one by Mr R. G. Collingwood on 'Roman Signal Stations on the Cumberland coast'. Mr Collingwood records the evidence, and his argument is set out with great clearness. He does not claim to have said the last word; but the evidence is convincing, so

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far as it goes, and, as he says, the very smallest amount of excavation would be decisive in a large number of cases.

There is a report on excavations on Hadrian's Wall in 1928 by Mr Richmond, and articles of that valuable topographical kind which has been such a feature of the *Transactions* in the past. We wish that other local societies would devote more attention to work of this kind.

Zur geschichte des Kamels in Nordafrika. *Petermanns Mitteilungen*, 75 jahrgang, hefts 11-12, 1929, p. 307.

This is a subject of obvious interest to archaeologists and historians. The date of the first appearance of the camel in Africa is clearly important in connexion with rock-carvings representing it.

The British Museum Quarterly, 1929, volume IV, no. 2, pp. 29-61, plates xv-xxxvi.

The outstanding feature of this number is shown on plate 24, which illustrates two neolithic Chinese vases of extraordinary interest and beauty. They have been presented by the Stockholm Museum. They were excavated by Professor Andersson in Kansu.

Some Welsh Wood-Turners and their Trade, by Iowerth C. Peate; reprinted from *Studies in Regional Consciousness and Environment*—essays presented to H. J. Fleure, D.Sc., F.S.A. Oxford, 1930.

An excellent account of the immemorial craft of Pembrokeshire and Cardiganshire. There is an admirably illustrated description of the primitive pole-lathe used until recently; and also photographs showing the similarity—or identity—of form with the skimmers, bowls and spoons of the Swiss Lake Dwellings. J.P.W-F.

An outline of recent Japanese archaeological research in Korea, in its bearing upon early Japanese History, by G. B. Sansom. *Trans. Asiatic Society of Japan*, December 1929, VI, 5-27, illustrated.

Opens with references to the two neolithic cultures of Japan, the Aino and the Yayoi, and refers to Professor Tori Ryūzū (who has been engaged in Korea since 1912) who states in his work *Yushi izen no Nippon* (1927) that neolithic sites in Korea reveal in their contents a very strong resemblance to the Yayoi types in Japan and South Manchuria and the Maritime Province of Siberia but not China. The later Chinese influences of the Chou Dynasty and the Han periods are dealt with. W.M.

Les alignements de Carnac (Morbihan), by Alexandre Baschmakoff. *L'Anthropologie*, 1930, XL, 37-75.

The place of honour, as regards length, is given to this article. Déchelette has said that of the abundant speculations on Carnac the great majority 'se classent dans le fatras des écrits que l'on nomme le roman préhistorique'. From this category it is impossible to exclude M. Baschmakoff. Twelve visits to Carnac have left him inaccurate in description and plans. He describes and draws the stone-rows as parallel, whereas they increase fan-wise in width from east to west, e.g. at Kerlescant

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from 198 to 330 feet. He knows nothing of the rows on Dartmoor or in Caithness. He classes Stonehenge with Carnac because its lines are parallel though circular, and 'its several parts had separate functions' (?) He dilates with evident sympathy on the ridiculous belief that the Carnac rows were erected as a military defence against an invader from seaward, but decides that they represent the companies and brigades of the prehistoric inhabitants assembled, and the well-known and undecipherable 'shield' inscription of Mané-er-Hroech is a proclamation to them (though it stands in the pitch-dark interior of the tomb) that they are the descendants of the snake, the bull and the ram! G.E.

The following list of recent articles on early man in China has been kindly sent to us by Dr Davidson Black, of the Department of Anatomy, Peking Union Medical College. Since their publication the important discovery by Dr Black of a second *Sinanthropus* skull has been announced. (*Daily Telegraph*, 31 July).

- (1) Tertiary Man in Asia. The Chou Kou Tien discovery. *Nature*, 20 November 1926, pp. 733-4. (Brief announcement of first discovery of hominid teeth). Id. *Science*, 17 December 1926, pp. 586-7.
- (2) On a lower molar hominid tooth from the Chou Kou Tien deposit. *Palaeontologia Sinica*, Series D, vol. VII, fasc. 1, November 1927. pp. 1-28, plates 2 and text figures. (New hominid genus *Sinanthropus* described and defined).
- (3) Further hominid remains of Lower Quaternary age from the Chou Kou Tien deposit. *Nature*, December 1927, p. 954. (Brief notice of material described in preceding paper). Id. *Science*, February 1928, pp. 135-6.
- (4) Preliminary note on additional *Sinanthropus* material discovered in Chou Kou Tien during 1928. *Bull. Geol. Soc. China*, VIII, April 1929, pp. 15-32, 5 plates and text figures.
- (5) *Sinanthropus pekinensis*: further note on new material recovered at Chou Kou Tien in 1928 and its zoogeographical significance. *Proc. Fourth Pacific Science Congress*, Bandoeng, Java, 22 May 1929.
- (6) *Sinanthropus pekinensis*: the recovery of further fossil remains of this early hominid from the Chou Kou Tien deposit. *Science*, 28 June 1929, pp. 674-76, and text figures.
- (7) Preliminary report on the Chou Kou Tien fossiliferous deposit, by P. Teilhard de Chardin and C. C. Young. *Bull. Geol. Soc. China*, 1929, VIII, 173-202.

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- (8) Preliminary notice of the discovery of an adult *Sinanthropus* skull at Chou Kou Tien, by Davidson Black. *Ib. id.* 207-9, 9 plates.
- (9) An account of the discovery of an adult *Sinanthropus* skull in the Chou Kou Tien deposit, by W. C. Pei. *Ib. id.* 203-5.
- (10) Interim report on the skull of *Sinanthropus*, by Davidson Black. *Ib. id.* 1930, ix, 7-10. 6 plates giving views of the skull fully disengaged from its matrix.

La Industria de la piedra en Monte Hermoso, by J. Imbelloni. *Anales de la Facultad de Ciencias de la Educacion*, II, 147-68. Universidad Nacional del Litoral, Parana, Republica Argentina.

The palaeo-ethnological results of the expedition of the University to the Argentine Atlantic coast in 1924 are examined. No human remains were found but there is an account of the stone implements. G.C.W.

Clava-insignia de Villavicencio, by J. Imbelloni. *Ib. id.* III, 219-28.

A fresh example, found in America, of the oceanic 'mere', this being a basalt club now in the Chilian Ethnological Museum found many years ago in the Mendoza mountains, Argentina. G.C.W.

Un arma de Oceania en el Neuquen, by J. Imbelloni. *Humanidades* (Buenos Aires), xx, 293-316.

Discusses a basalt axe found at Chubut, and now in a private collection in Buenos Aires, which is described as 'American specimen of a product of the culture of the Pacific peoples, in particular of the Maori-Mori group'. G.C.W.

Atti del XXII Congresso Internaz. degli Americanisti, Rome, 1928.

There are three papers by J. Imbelloni. The first, 'Intorno ai crani "incredibili" degli indiani Natchez' criticizes in connexion with Natchez skulls the methods that have been used in the study of artificial deformation. In the second, 'Le relazioni di parentela dei popoli Andini seguono il "sistema classificatore" proprio degli Oceanici' he links Andine kinship terms with those of Oceania. The third, 'L'idioma Kichua nel sistema linguistico dell' Oceano Pacifico' discusses the kinship between Kechua and the Oceanic languages. G.C.W.

El Origen de la Columna de Tipo Mediterraneas, by J. Martinez Santa-Olalla. *Ipek*, 1929, pp. 35-45.

Describes 'the oldest-known columnar structures with the Mediterranean column', which are to be found in the Balearic isles, where cultural development was long arrested at the late Bronze Age level of the original immigrants: the rude central columns supporting the vaults of certain Minorcan *navetas* are claimed to be the prototypes of the columns of Knossos and Mycenae. R.A.

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Iberische Prunk-Keramik vom Elche-Archena Typus, by H. Obermaier and C. W. Heiss. *Ipek*, 1929, pp. 56-73.

A detailed description of selected Iberian grave-pottery from the Heiss collection in Madrid. The bird and the beast of prey, of which Bosch says that they are 'the two classic animals of the Elche school', are the living elements in the ornamentation, which is otherwise geometric or stylized, with the S-motif and concentric semi-circles in bands, and with stylized plants, even a stylized fish. R.A.

Iberische Steinskulpturen, by H. Kühn. *Ib. id.* pp. 74-8.

Insists on the continuity of the art of the Cerro de los Santos sculptures with the Iberian art of the Neolithic and Bronze Ages. The Greek influence, purely technical and external, fails to touch the inner spirit of an art which is to the end geometric, almost two-dimensional, relying on the line and the external contour (*Umgrenzung*) as means of expression, and maintaining the frontal pose with symmetrical treatment.

Kühn denies the Roman influence alleged by Carpenter for some of the male statues. R.A.

Aperçu sommaire sur les Industries Lithiques du Maroc central, by M. Antoine. *Bull. Soc. préh. Maroc*, 1930. 4me année, no. 1, 29-49.

Too little is known about the Stone Age in Morocco. This article is therefore very welcome. Mention is made of the occurrence of Chellean, Acheulian, Mousterian, post-Mousterian, and Neolithic industries. It is to be hoped that the author will bring out a large work on this interesting area later on and that he will not try to follow too slavishly the French sequence of cultures. Why for example should a post-Acheulian industry in Morocco be classed as Mousterian merely because the tools are made of flakes, when there is no proof that Neanderthal man ever visited the country? Similar flake industries occur in many parts of Africa, until superseded by 'blade and burin' industries. But after all what is needed today is exploration; so good luck to Prof. Antoine in any further investigations he may be contemplating. M.C.B.

Jericho: Sir Charles Marston's expedition of 1930, by Prof. John Garstang. *Quarterly Statement of the Palestine Exploration Fund*, July 1930, pp. 123-132, 10 plates, including plans and sections across the site.

A re-examination of Jericho in the light of the advances made in Palestinian archaeology was urgently needed. When the site was excavated by the Germans 20 years ago, but little was known about Palestinian pottery, and the exact dating of strata was naturally difficult. The results of the present excavation showed that 'the city was destroyed, in round figures, about the year 1400 B.C., just before the infiltration of Mykenaeen wares began'. The destruction took place *before* the deposition (in a known stratum) of a Late Minoan III pot which 'cannot be earlier than 1350 B.C. and possibly dates from the 13th century, towards the time of the Philistines' (Dr H. R. Hall, on p. 122). This is a most satisfactory outcome of an admirably conducted and really useful dig.

Reviews

EXCAVATIONS AT TELL EN-NASBEH, 1926 AND 1927. *A preliminary report.*
By WILLIAM FREDERIC BADÉ. Berkeley, California, 1928. pp. 56, with 26
illustrations. 1 dollar.

THE EXCAVATION OF ARMAGEDDON. By CLARENCE S. FISHER. *University
of Chicago Press*, 1929. pp. xiii, 58, with 53 illustrations. 1 dollar.

In comparison with the returns from excavations on early sites elsewhere in the Near East, archaeological work in Palestine has been generally disappointing. On every site, with the two exceptions perhaps of Beisan and Samaria, there has been a curious poverty of written records in all periods before the Hellenistic. Happily there is no sign yet that their meagre rewards have discouraged diggers from prosecuting further researches, and the preliminary reports above mentioned are two of the welcome evidences of recent activity.

Tell en-Nasbeh is a prominent landmark about 7 miles north of Jerusalem, close to the main road to Nablus and Galilee. It has been identified with Mizpah of Benjamin, but this identification, though warmly endorsed by Dr Badé, is by no means generally accepted. An expedition, sent by the Pacific School of Religion in Berkeley, California, under the direction of Dr Badé, has been working here for three seasons, in 1926, 1927 and 1929, and the pamphlet before us is a preliminary report on the work of the first two seasons.

The most impressive discovery made was that of the city wall on the south side of the site. This wall was still standing with three great bastions some 25 feet high in places; 'the horizontal diameter of the wall, tower and revetment on top was twenty-nine feet, and by estimate about thirty-five feet at the bottom' (p. 19). It belongs to the Middle Bronze Period, say from 2000 to 1800 B.C., and compares favourably in size and preservation with any that have been previously found in Palestine. The wall was built of undressed blocks laid in clay mortar and was found 'covered, to a height of fifteen or eighteen feet from the bottom, with a thick coating of hard yellow plaster'. To the best of our knowledge this plaster is unique: Dr Badé suggests that the wall was plastered to make it more difficult to climb. The wall cannot have been less than forty feet in height originally and Dr Badé is justified in quoting from Deuteronomy (1, 28): 'the walls of these cities reached unto heaven'.

His account of a rectangular building within the city, which he identifies with an Israelite 'high place', carries less conviction, in spite of the ingenious interpretations of various objects found on the spot which he puts forward.

Criticism will also be aroused by his description of two early tombs as pre-Semitic. For some years archaeologists in Palestine have abandoned the old ethnic labels which were used by Macalister and others in earlier days, feeling that the evidence did not warrant this employment. Dr Badé found in these tombs some painted pots similar to those found by Captain Parker on Ophel (see Vincent, *Jérusalem sous terre*) and also a

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series of double cups—small cups inside larger ones to the rims of which they are attached—which have not been found previously. With these were found some human remains, and it is unfortunate that Dr Badé has given an ethnic label to the pottery before these crania have been properly studied.

Dr Fisher's account of the excavations at Megiddo is one of a series of 'Oriental Institute Communications' which are written in a popular style for the general reader.

The actual excavations described in this bulletin were confined almost exclusively to the two uppermost strata on the *tell*, and a miscellaneous series of tombs, ranging from about 2300 B.C. to about A.D. 400, on the side of the hill where it was decided to shoot the spoil from the top. During the period covered by the later strata Megiddo was 'a mere fortified post along the highway and not a great walled-in city', so it is not surprising that the finds in those levels were of no great importance.

The account of the finds, however, takes up only two of the six chapters in this report. The rest is devoted to an excellent account of the topography of Megiddo and its place in history, the organization of the expedition and the field-methods adopted. The funds for the work have been provided on a generous scale by Mr John D. Rockefeller junior, and the excavation promises to be one of the most elaborate and systematic ever conducted in the Near East. Dr Fisher has written an admirably lucid and objective description of his aims and methods, and we devoutly hope that some epigraphic records may be found in the lower levels of the *tell*. A small fragment of a stele set up by Shishak, which was found on the surface by workmen in search of building material, is rightly regarded by Dr Breasted, who contributes an introduction to this report, as a good augury.

J. W. CROWFOOT.

A SUMERIAN PALACE AND THE 'A' CEMETERY AT KISH, MESOPOTAMIA. By ERNEST MACKAY. Field Museum Anthropological Memoirs, vol. 1, no. 2. Chicago, 1929. pp. 143 with 42 plates. \$3.50.

The disinterment of early Sumerian civilization by Anglo-American enterprise is the most important archaeological event of post-war years. The work of excavation is proceeding apace, but publication lags dangerously behind. Excavators, competent to tackle the bewildering intricacies of mud brick walls and pavements, are rare, and their time is kept fully occupied. The mound covering the archaic Sumerian palace and later, but still archaic, Sumerian graves, described in this memoir, was explored by the joint expedition of Oxford University and the Field Museum, Chicago in 1923-5. Some of the graves were fully described by the author in the first part of this memoir (which is paginated as a continuation of that publication) in 1925. Since then Mr Mackay's expert services have been engaged elsewhere—a fact which presumably explains the delay in publishing the present volume, the absence therefrom of all reference to the discoveries at Ur, mis-prints and false citations in the text, the omission of the 'skeleton plan' (plate XXII which should, according to the text,* contain it is, in fact, evidently a continuation of the inconveniently bisected plate XXI), and other indications of hurried writing (barbarisms such as 'employing the use of a pair of animals to draw it').

The palace, the oldest known secular building of the Sumerians, was in a sadly ruined state. It was largely built of unburnt brick and had been sacked; other buildings

* Dr Mackay has told us privately that proofs were not sent to him in India, so he is not responsible for many of the errors.—ED.

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had been erected on its site, and at some time or other graves had been dug in the heap of ruins. The excavators' task was accordingly one of appalling difficulty. But just for that reason we should have liked more data to enable us to control their interpretations of this unique monument of remote antiquity. But there is nothing to show the position of the secondary constructions and graves in relation to the original palace—such indications were apparently to have been given in the missing skeleton plan. Again there are lettered sections of the palace—only—but no indications on the plan of the lines of section. Moreover we are left in doubt whether the site has yet been thoroughly explored, the excavators even stating that 'remains of this (hypothetical earlier) period may even now exist below the palace'.

The palace as described was a complex, built at two not widely separated periods. Of the first phase the principal structure that survives presents many of the features of a fortress. It was girt with an outer wall 3.50 m. thick and strengthened with buttresses described elsewhere as towers though they project only 15 cm. from the wall face. Inside came a corridor described by the excavators as a kind of fosse between the outer and inner lines of defence. The internal edifice comprised a court yard and a complex of small chambers, none very palatial. A more imposing building of like age lay to the east, but all that remains of it is a fine stairway and the bases of flanking buttresses, elaborately recessed, like the façades of Old Kingdom brick *mastabas*. This stairway was replaced by a ramp when the later annex was added (though in the reconstruction it is shown in its pristine beauty side by side with the new building!). In the latter we meet the celebrated colonnade of brick pillars, illustrating an ancient architectural tradition early abandoned on the alluvial plain of Shinar.

While probably the oldest and certainly the most striking examples of Sumerian secular architecture, the age of these structures is not so easy to settle; for relics were as sparse as in an Irish rath. Certainly contemporary with the pillared building were the fragments of a shell and limestone frieze, including one very remarkable figure of a bearded king, but certainly allied to the inlay from the small first dynasty temple at Al'Ubaid. But with these went fragments of iron—apparently a nail. In another room of the same building was found a stone tablet inscribed with pictographic characters. But Mackay warns us that this document, regarded as the oldest piece of Sumerian writing extant, may be very much older than the palace. Other objects, such as a transverse axe, seem to have fallen down the drains of the later buildings.

But the graves, embedded even in the wall stumps of the palace, must be substantially later than it; yet their furniture is very archaic. The types therefrom point on the whole to the pre-Sargonic period (before 2750 B.C.). For instance nearly every grave contained one of those large pedestalled bowls (Woolley has pointed out that Mackay's interpretation as braziers is untenable), so characteristic of the earliest tombs at Ur but missing in the Sargonic graves there and the Ur I graves at Al'Ubaid. The stone vessels and shell lamp (falsely labelled a beaker) are again paralleled in early finds from Ur. On the contrary many copper implements, including axe-heads, from Kish had been cut out of sheet copper, not cast. Woolley at Ur expressly states that this primitive technique is peculiar to late, i.e., Sargonic, graves. Such a contradiction is a salutary reminder of the uncertainties which still beset the chronology of the early Sumerian period. The first step towards remedying it is the full publication of accurately excavated material. From this standpoint, if from no other, the present volume is indispensable; for it is clear enough that Dr Mackay carried out his gigantic task with triumphant skill and painstaking accuracy.

V. GORDON CHILDE.

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THE HERBERT WELD COLLECTION IN THE ASHMOLEAN MUSEUM.

Pictographic Inscriptions from Jemdet Nasr excavated by the Oxford and Field Museum Expeditions.* *Oxford editions of Cuneiform texts*, vol. VII. *Oxford University Press*, 1928. pp. VIII, 72, with 41 plates. 10s.

Professor Langdon's publication of the semi-pictographic tablets found by him at Jemdet Nasr in 1926 is an important contribution to the archaeology and history of the archaic period of the lower Euphrates valley. Before this discovery less than a dozen texts of equal antiquity were known. Jemdet Nasr has yielded nearly 200, and some others, certainly leakages from the excavations, have been acquired by purchase by the Louvre and the British Museum.

By comparing the signs inscribed on these tablets with those of slightly later date from Fara, the author has been able to compile a list of 463 archaic signs, to establish an analogy with 168 Assyrian signs, and to check the identifications already made by means of these primitive photographs.

A still more important achievement is that he has proved the language of these texts to be Sumerian. At Jemdet Nasr then there were Sumerians settled in the midst of the primitive population, which latter is distinguished by its painted pottery and stone implements.

Professor Langdon rightly calls attention to another discovery of no less interest, for it is a fresh proof of the growth of intercourse between the different racial groups at the beginning of the historic period. The engraved documents found at Jemdet Nasr, whether tablets or seals, closely resemble, both in subject matter and execution, the archaic documents found at Susa; there must therefore have been a close cultural connexion between these two places.

It would perhaps be going too far in the present state of knowledge to agree with the author's conclusion, from these and other facts, that Sumerian civilization came to Mesopotamia by way of Elam; that it was first established in the region later called Akkad; and that from there it spread southwards as far as the Persian Gulf. The certain facts are still too scattered to justify such a generalization.

This fine monograph makes one hope for early publication of the archaeological material found at Jemdet Nasr in 1926 and 1928—the painted pottery, domestic objects and seals.

L. DELAPORTE.

PRELIMINARY EXCAVATIONS AT TEPE GAWRA [near MOSUL].

By E. A. SPEISER, *University of Pennsylvania*. *The Annual of the American Schools of Oriental Research*, vol. IX for 1927-1928, pp. 17-94, with 135 figures including plans of site. *New Haven: Yale University Press*, 1929.

This is a good example of valuable results obtained in a short time for a small outlay. Tepe Gawra is a mound about 2 miles east of Khorsabad. Excavations carried out by Dr Speiser and his colleagues in 1927 revealed three culture-layers, of which the first two were prehistoric (yielding painted pottery). To the layman the most interesting part is that (on pp. 50 and 51) giving Dr Speiser's own views about the succession of events in the home of civilization. We quote them in full:—

'The earliest observable movement brings the Painted Ware Culture from the northern highlands, in which it most likely originated, down to the head of the Persian

* Review translated by the Editor.



TEPE GAWRA, BETWEEN MOSUL AND KHORSABAD, TAKEN 14 FEBRUARY 1928

By permission of the Trustees of the British Museum



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Gulf. This "Proto-Zagros" civilization established the first settlements at Gawra as well as in the south.

As the accumulating silt of the Two Rivers kept on adding to the inhabitable area of the fruitful plain, stone-using Semites from North Arabia, and possibly also from the West, gradually found their way to the newly opened low-lands; the northern invasion is checked by a counter-movement from the opposite direction. The highlanders are constantly pushed back towards their mountains until the entire region is cleared of them as far as the foothills of the Zagros.

In the meantime the fame of the fruitful lands in the narrow and elongated channel between the Tigris and the Euphrates brings to the country a third racial group, the Sumerians; who come a longer distance, probably by sea, and drive in a wedge, so to speak, between the warring elements of north and south. That wedge does not penetrate beyond the Middle Euphrates, where the contest between the Semitic "Amorites" and the "Anatolians" continues uninterrupted down to the second millennium. But Lower Mesopotamia undergoes a profound transformation. Metal and writing make their appearance and the Sumero-Akkadian civilization slowly emerges into the full light of history. So powerful is this combination of old and new resources that it sweeps before it everything on the way to Asia Minor and the Mediterranean. A score of centuries later the period of "The King of Battle", now a Heroic Age, embellished by legend, still excites wonderment and admiration.

LONDON IN ROMAN TIMES. By R. E. M. WHEELER, with contributions by T. DAVIES PRYCE, T. V. WHEELER and E. B. BIRLEY. *London Museum Catalogue*, no. 3. Lancaster House, St. James's, S.W. 1. 1930. Paper covers 2s., bound 2s. 6d. pp. 211, 61 plates (including 2 maps), and 58 figures in text.

It has been stated on good authority that this is the best museum catalogue of its kind that has ever been written. We entirely agree. It is yet one more proof that wide learning and scholarship and a good style, so far from being incompatible, are a necessity for the writer of a popular guide-book. We fancy that the secret of Dr Wheeler's remarkable output of first-rate books is to be found in the speed with which they are conceived and composed; that they are envisaged as a whole before they are begun; and that they are finished before the iron has time to cool. That may also account for the fact that they are readable.

The present book is both catalogue and guide. It is divided into prologue, catalogue and epilogue. The prologue is a short history of Roman London, the epilogue ('On the Significance of Roman London') a brilliantly composed picture of it; the parts in between consist of the catalogue (of the best kind, fully illustrated) well seasoned with descriptive matter. The various objects dealt with are grouped together under such headings as structural remains, sculpture, inscriptions, lighting, surgical and toilet instruments, metal vessels and pottery. Amongst the most attractive of the objects is a bronze foot rule. The famous ship, found when the County Hall, near Westminster Bridge, was being built, is very fully described.

There is a fascinating map showing Londinium in its natural environment of forest, marsh and gravel heath (still surviving at Hounslow, Hampstead, Wimbledon, and Blackheath); and another of the town itself on a larger scale.

Dr Wheeler deplores the opportunities neglected in the past for organizing the preservation and record of antiquities found during deep excavation in the City. By

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the expenditure of a few hundred pounds a year on the salary of an expert to watch and draw sections, this might have been avoided. When will the British public learn that it is not only *what* you find but *where* (vertically and horizontally) that matters; that these finds are the tokens of history and of no other value whatsoever (unless works of fine art)?

We advise all our readers to buy this book. There can be few who will not find something in it of interest, for everyone has heard of London, even our remotest readers in China and Central America. We commend it also to the notice of provincial museum curators, especially those who have left undone the things which they ought to have done; and the curators, if such exist, of certain dreary charnel-houses in the more backward States of Europe. May it at least shame them into writing a few labels.

THE COMMERCE BETWEEN THE ROMAN EMPIRE AND INDIA. *By*
E. H. WARMINGTON. *Cambridge University Press, 1928. 15s. net.*

Mr Warmington has written a very valuable study of a difficult subject whose importance has, on the whole, not been sufficiently recognized in the past. Threading his way through masses of details, the most important of which are the references in classical literature to Eastern products, and the Roman coins found in India, he comes to the conclusion that the crucial event for the history of this trade was the discovery—made by Hippalos, in the reign of Claudius—that the monsoons permitted of a direct passage between Cape Guardafui and the Tamil states of Southern India. This discovery cut out the long coasting voyage and greatly facilitated the work of navigation. The result was a rapid increase of trade; but this was followed by a decline in the third century, due to a decline in the purchasing power of the Roman Empire. This general outline is complicated by the fact that, in Ceylon, Roman coins only begin to appear freely in the fourth century, showing that in that direction Roman trade expanded at a late date; earlier, Mr Warmington suggests, Ceylon was only tapped through the mediation of Southern India. Another complication arises from the fact that coins of the fifth century are not rare in India, at a time when, owing to the decay of the Roman Empire, commercial relations might be expected to have ceased.

There are a few points where further explanation would have been welcome. The statement that mariners using the northwest monsoon 'could by throwing the ship's head off the wind with a constant pull on the rudder [? helm] and a shift of the yard (thus sailing in an arc of a circle) go across to Malabar marts in forty days' is difficult to understand. You can keep a course in a steady wind, even if you have no compass, by keeping the wind (for instance) two points on the starboard quarter; and that will entail, since most vessels carry weather helm, putting your helm to starboard and keeping it there. But this does not mean sailing in an arc of a circle: on the contrary, it is the only means of sailing in a straight line—a line as straight as spherical trigonometry will allow you. Again, Mr Warmington quotes Lucian's story of a ship 180 feet long which carried enough wheat to last Attica for a year; but we should have welcomed an estimate of Lucian's margin of error, remembering that a vessel of that length might in point of fact displace 1,500 tons or more and might be equal to carrying about 1,000 tons of wheat—enough to feed only a very few thousand people for a year. And where is Olok, which is mentioned three times? Can it be a slip of the pen for Obok, the capital of French Somaliland?

R. G. COLLINGWOOD.

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HELLAS REVISITED. By W. MACNEILE DIXON. Illustrated by MARY R. L. BRYCE. Arnold, 1929. pp. 209 with 16 illustrations and 2 maps.* 10s. 6d.

The Regius Professor of English Literature in the University of Glasgow here gives us a book of travel which he desires us to regard neither as a guide-book nor as a piece of scholarship: yet it is a book which all who go to Greece should take with them to supplement and enliven their Baedekers, and it is redolent of its writer's devoted Hellenism. Thus, while it is true to say that we meet with all the obvious literary and historical allusions appropriate to each place described, yet the manner of their introduction is such that we are thankful for their inevitability: Professor Dixon's familiarity breeds no contempt, but a feeling that absence of the familiar would leave a sense of loss. He modestly hopes that his book may be a 'signpost to Sir James Frazer's *Pausanias*', and elsewhere confesses to his love for Plutarch's companionship: we would add Professor Dixon and make a trio for our wanderings.

After two preliminary chapters upon the Greek Achievement and the History of Greece, the travels are described in the form of a diary; but we seem to listen to the casual, yet never trivial or irrelevant, conversation of the travellers on their road. Thus are discussed such questions as the absence of a team spirit among the Greeks, and the growth of professionalism in games; the superiority of modern physical courage over that of the ancient Greeks; the mythopœic influence of Greek landscape; Greek religion (much that is well said here: the discussion of oracles is excellent); Greek sense of form in art; the superiority of the Olympia pedimental sculpture to the Hermes. Mingled with such discourse there is much information about modern Greece: do not all who have made the journey to Epidaurus know those dogs? And we are warned, too, that our nights may be disturbed by the more insidious attacks of mosquitos. The habits of the mule are set forth in a masterly passage: but it were impertinence to praise the style of a Professor of English Literature; we can only enjoy it. Nor here should we forget the incidental poems.

One point is noteworthy: Professor Dixon's first period of Greek history is the 'Homeric'; he therefore takes no cognizance of all that development of which the Trojan War was but the ending. He is, in fact, no prehistorian: thus the writing on the Late Helladic vases at Thebes is called 'Greek' without more ado.

There are a few minor misprints: on pp. 7, 66 and opposite p. 44 ('Sunim'); on p. 199 τεινον should be accented (since in modern Greek this affects the pronunciation) if it is mentioned at all; but surely it is of the artificial printed language of Athens, and the way to get tea is to ask for 'τσάι'?

The illustrations, from pencil drawings after photographs, sometimes fail (to my mind) to reproduce the peculiar clarity and clean lines of Greek landscape. Perhaps this is due to their medium, or perhaps because they are but copies of copies; indeed, threefold copies, Plato would say. But they preserve much charm; the Northern shepherd is true to the life, and long may his kind continue.

The greatest of modern Classical scholars wrote recently in his memoirs that after a visit to Greece he felt himself to be 'for the first time qualified to understand Hellenic history and the Hellenes, and above all, their gods'. This book bears the same testimony; and it will make all who have not been to Greece long to go there; and all who have been, to go again.

W. L. CUTLER.

* We understand that a second impression of this book has already been found necessary.—
EDITOR.

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AEGYPTIACA : a Catalogue of Egyptian Objects in the Aegean Area. By J. D. S. PENDLEBURY. *Cambridge University Press, 1930. pp. 116, with 5 plates and map. 15s.*

Intercourse between Egypt and Greece had, with a few periods of interruption, been lively from the beginning of the age of metals. Immigrants, merchants, mercenaries and raiders brought from the land of the Nile souvenirs and merchandise which they had buried with them in their tombs or offered up to their patron deities. An absolute chronology of the prehistoric periods in the Aegean, and hence also in a large part of barbarian Europe, is rendered possible by this intercourse alone. Yet no one had collected and tabulated as a whole the concrete proofs of these interrelations. Now Mr Pendlebury gives a critical list of 307 objects of Nilotic manufacture unearthed in Greek lands with their context, if any, as well as a brief conspectus of Aegean Bronze Age pottery from Egypt. The best evidence for the crucial chronological questions is thus presented in a form that every interested student can examine for himself. Only a fraction, of course, of the Egyptian imports are really available for dating purposes: some have no context, some no precise date, others are plainly heirlooms like the Old Kingdom vases from Late Helladic graves. The re-examination of the rest might seem at times to disturb our faith in established synchronisms. The Egyptian objects from the famous 'Hagios Onuphrios deposit' belong to the xixth or even xviiith dynasty though the deposit is usually regarded as mainly Early Minoan. Similarly First Intermediate and Middle Kingdom objects are alone represented in the collective *tholos*-tombs of the Mesara whose first use should go back well into the Early Minoan age. Finally a faience vase from shaft grave III at Mycenae is here published as an Egyptian product of the latest xviiith or xixth dynasty though the exclusively L.H.I pottery from the tomb should belong rather to the xvth century. The Egyptian provenance of this vase is not, however, accepted by authorities such as Dr Hall. Conversely, the sherds from Lahun, published by Forsdyke as Middle Helladic, are here rejected as non-Aegean. For the rest current theories are only confirmed, and the chronology of the Early Iron Age given a little more precision. Five half-tones plates reproduce, generally full size (which despite the unusual sharpness of the photographs is not always quite enough), the more important objects, while maps illustrate their distribution. Rhodes is omitted altogether. It has yielded more Egyptian objects than all the rest of Greece put together, and Pendlebury believes that the island was the principal link between the Aegean and the Nile in the late Mycenaean period. This novel view, by no means the least interesting thing in the book, will be expounded in detail in a separate work.

V. GORDON CHILDE.

THE CLASSICAL MONUMENTS OF ROME AND ITS VICINITY. By GIUSEPPE LUGLI, translated by GILBERT BAGNANI. Vol. I. *The Zona Archeologica.* Rome, 1929. 40 lire.

Professor Lugli's *La Zona Archeologica di Roma* is a book that needs no praise. It was published in 1924, and since then all visitors to Rome *cognoscendae antiquitatis* have found in it a guide at once indispensable and sufficient. This translation is not a mere reproduction of the original book; it has been revised throughout and much new material has been added to it, so that those who have the original will be glad to have the new book as well. Five years have revealed very little in the original book calling for correction, but they have brought to light a good deal of new material, and this has

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been added in the form of new paragraphs and new illustrations. Mr Bagnani's translation is satisfactory. It has not the elegance and force of Professor Lugli's Italian, but it is careful and readable, and very seldom fails to represent the exact sense required. The printers must be especially congratulated on producing a book in a foreign language with an almost complete absence of misprints; and the illustrations, many of them from new blocks, are much better produced and more visible than in the first edition. In short, this book will be indispensable, not only as a guidebook for all intelligent visitors to Rome, but for everyone who wants up-to-date and trustworthy information about the topography of the ancient city on a smaller scale than Platner and Ashby's *Topographical Dictionary*.
R. G. COLLINGWOOD,

THE HITTITE EMPIRE: being a survey of the History, Geography and Monuments of Hittite Asia Minor and Syria. By JOHN GARSTANG. Constable, 1929. pp. 364, with 53 plates, 45 text illustrations and 15 maps and plans. 25s.

This book was begun as a second edition of the author's *Land of the Hittites* (1910). The great increase, however, in material since Hrozný began his decipherment of the Hittite cuneiform documents (*Die Sprache der Hethiter*, Leipzig, 1917) has required the work to be entirely remodelled. The result is an up-to-date account of the whole subject. That it is final, the author himself would no doubt be the last to claim. Much material must still remain to be found by excavation, much that has been found is still unpublished, and much that has been published has not yet been fully studied. Moreover the hieroglyphic 'Hittite' inscriptions still defy all efforts to wring from them the information which they must contain as to the various important sites on which they are found. The work is nevertheless valuable both as reporting progress and as a guide to the large amount of scattered literature on the subject. No one is better qualified than Professor Garstang to undertake such a work. He writes out of the fulness of his heart. He is so familiar with his subject that he can view it as a whole, and can show to his reader the broad general lines on which history has developed. This is especially valuable in the present study, where great events or tendencies are only to be inferred from a number of small indications. Some of the details may be open to different interpretations which it is not possible to discuss here, but it may be questioned in general whether Professor Garstang quite appreciates the perplexity of a reader who is not so well versed in the subject as he is himself, and whether he indicates clearly enough the degree of certainty attained in some of his conclusions. Thus it seems to be assumed that the people of Boghaz-keui (Hatti) were of the same race as those who produced the later monuments in the south (Carchemish &c.). That may be so (or it may not) but it cannot be assumed. Again Forrer's views as to the mention of Achæans in Hittite cuneiform texts are not discussed, though it seems in some passages that Professor Garstang accepts them. The fall of Hatti (c. 1200 B.C.) is assumed to have been due to invasion from Europe, but this can hardly be said to be proved, and in any case is it the whole truth?

The identification of places from similarity of names is dangerous if unsupported by other evidence. Professor Garstang, while inclining to such identifications, is evidently aware of this danger, and for that reason devotes a large part of his book to a discussion of the geography, on which he is an acknowledged authority. Another large part is occupied by a detailed description of the monuments, which is of great value and interest. His elucidation of the sculptured scenes (as at Yasili-kaya) is particularly welcome. At the same time all the monuments are grouped together as 'Hittite',

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whereas we should be glad indeed of some guidance in distinguishing what is 'Hattic' (i.e., belonging to the early Northern culture) from the Southern art (and language), which is undoubtedly later.

The illustrations and maps are good, and there is a useful bibliography of the monuments and a general index. The book should be read and re-read by everyone interested in the recent discovery of this department of ancient history. But while we are grateful for this careful collection of material, we want more. It is disappointing to read that an inscribed monument was found on some important site and to have no copy of it, or a copy which is useless for study of the text. While the cuneiform literature of Boghaz-keui is being published (chiefly in Germany) and studied with valuable results for the early period (to 1200 B.C.), very little has been done to promote the study of the hieroglyphic inscriptions, which must be equally important for the later period (9th century and after). The *Corpus* of Messerschmidt contains copies as good as could be got at the time (1900-6), but much has since been discovered which has not been reproduced in any form suitable for study. Will not Professor Garstang increase our obligations to him by editing a complete *corpus* of all known Hittite hieroglyphic texts with really legible and trustworthy copies? A. COWLEY.

THE INVASION OF EUROPE BY THE BARBARIANS: a series of lectures. By the late J. B. BURY. Edited by Professor F. J. C. HEARNshaw. Macmillan, 1928. 12s. 6d.

Everyone who is interested in the connecting-links between the Roman Empire and the Middle Ages, and everyone who honours the memory of Bury, must be grateful to Professor Hearnshaw for editing the text of these lectures, given from time to time at Cambridge and containing in a form suited to the lecture-room the main fruits of the lecturer's profound knowledge of the period. The book begins with an account of the Germans and their wanderings, and goes on to narrate the story of their impact upon the Roman Empire in the third century, and the gradual development of the situation to which that impact led. It ends with a description of the Lombard kingdom in Italy. In a book of 300 pages, the innumerable obscurities and controversies which surround these events are necessarily kept out of sight. The intention is to give the author's own view of their results; he would have been the last to claim that his own views were in all cases final, but no one will deny that they are always worthy of the closest attention, and that, as presented here with the informality and ease of a lecturing style, they give the reader a profound sense of the combination of accurate learning and balanced judgment which made Bury a great teacher. The editor has scrupulously preserved the colloquial tone of the lecture notes, and thereby given us an interesting demonstration of the difference between Bury's style as a writer and his style as a speaker; but at the same time it might be thought that his scruples were overdone when he has refrained from correcting such slips as Claudius I for Claudius II (p. 22), Eleusia for Eleusis (p. 70—no doubt a mere misprint), 'as powerful . . . than the Germans' (p. 79), Terouanne for Théroutanne (p. 102), Rhaetia for Raetia (p. 205), Zulpich in the duchy of Ülich for Zulpich in the duchy of Jülich (p. 239), or euphuism for euphemism (p. 247). But one thing at least is clear: no one can wish, as the friends of deceased scholars too often wish when their unpublished writings are posthumously edited, that these lectures had not been published. On the contrary, they will be an indispensable accession to the library of every student of the period and an additional monument to a great historian.

R. G. COLLINGWOOD.

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EXCAVATIONS AT OLYNTHUS. Part 1. The Neolithic Settlement. By
GEORGE E. MYLONAS. *Baltimore: The Johns Hopkins Press, 1929. 34s*

This full report of the prehistoric finds at Olynthus, 'accidental and incidental' though they are called by Professor Robinson in his foreword, is useful and timely, for prehistoric Chalcidice is now being linked up with the other fields of Aegean archaeology. The Megali Toumba was occupied during the Neolithic Age by a people of Thracian and Dimini relationship. Early Helladic invaders probably destroyed the settlement and abandoned the hill. As Early Helladic strata have been found on virgin soil at Molivopyrgo, the port of Olynthus, and above a neolithic deposit at Hagios Mamas half a mile to the south, Dr Mylonas suggests that the Early Helladic name was given to the village at Hagios Mamas and transferred to the Megali Toumba by later Greek settlers. So Olynthus does not altogether belie its name; and another volume will show when the first Greek settlers arrived, and, if the above suggestion is correct, how long a period of time elapsed during which the name of the neighbouring mound survived in memory. As yet no Iron Age remains have been reported from the neighbourhood; Hagios Mamas was abandoned at the close of the Late Macedonian period, and Molivopyrgo still earlier.

There are remains of three settlements, each of which was destroyed by fire; but no radical change of culture occurred in the 1.50 metres of neolithic deposit. Dr Mylonas gives a detailed account of each section of the finds, paying particular attention to a potter's kiln, the ten figurines, and the sixty-five celts, which are all illustrated, while two admirable charts give the required details. Monochrome red and black pottery characterizes the site throughout, a polished black being the commonest of the fine wares. Incised and painted sherds were found in a small percentage in the two upper strata; group 1, matt black on red clay or lustrous black on a deep red slip, is related to the Dimini β_3a . Group II, white on black polished, of which one sherd alone survived, recalled the first stratum at Vardino, Thessalian i, y, i. and a Thracian ware. These painted sherds seem in general agreement with Heurtley's finds at Hagios Mamas, but in different proportion. (B.S.A. report, 1927-28). A few red-slipped sherds were found from virgin soil upwards; but no satisfactory conclusion is reached about them, for Dr Mylonas rejects, and later claims, their similarity to Thessalian 1 (pp. 34, 50).

The book is unfortunately marred by confusion of thought and vagueness of expression. For example the words 'Thessalian' and 'Neolithic' are used where precise nomenclature is important. We are left to wonder whether there were one or more examples of the incurved rim typical of Early Helladic bowls, whose development is surprisingly traced through the three settlements (pp. 23, 32, 84). And Dr Mylonas struggles in vain to deny racial affinity with the early Danubians, as attested by the black carboniferous ware. He implies that connexion with the Danube means intrusion from the Danube; but Childe (*Danube in Prehistory*, pp. 34, 63) has convincingly reversed the direction and attributed Vinca 1 and Danubian 1 to Aegean colonizers.

The illustrations are profuse; but while six sherds are illustrated twice, there is no map or topographical photograph such as Rey gives (B.C.H., 1917-19, p. 168, fig. 135). The sherd which is described as 'worthy of any prince's table' is illustrated upside down (pl. 1, 3). Exact measurements are always given in the text, but neither plans nor illustrations have scales. 'Childe' as a foot-note refers to *The Dawn of European Civilization*. The word 'parallel' on p. 41 and the word 'straight' on p. 48 are not borne out by the illustrations. For 'graffite' on pp. 49, 50 read 'graphite'. G. A. D. TAIT.

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L'OLOGÈNE HUMAINE (OLOGÉNISME). By GEORGE MONTANDON. Paris: Librairie Félix Alcan, 1928. pp. 478 and 8 plates. 125 francs.

The author, a French geographer and anthropologist, is favourably known for his study of the Ainu. In this work he develops a somewhat novel theory of racial differentiation and discusses in some detail racial classification. The theory of ologenism is based upon Wegener's hypothesis of the origin of existing continents by fission from a primeval land mass, and upon the speculation of the Italian, Daniel Rosa, as to the production by animal species of paired daughter species. According to Wegener the last continental rupture was that which resulted in the separation of North America from Europe and occurred during the Pleistocene period. The other fissions preceded the evolution of higher primates.

Rosa's idea is that when a species reaches maturity it gives birth to new twin species, one of which is precocious and the other retarded in its development. Each of these in its turn has twins, but the backward species not only develops more slowly, but also reaches a higher evolutionary stage. Sometimes the precocious twin is sterile.

Montandon combines these theories and postulates, if I understand him correctly, a separate evolution of paired human races in each of the continents (with the possible exception of the Americas). In a paper subsequent to the book, the author summons in support of his ologenetic views the apocryphal anthropoid ape alleged to have been discovered in Venezuela sometime between 1917 and 1920. To a sceptical observer the one published photograph of this 'anthropoid' looks like a spider monkey sitting on a cracker box, and the tale of his discovery and subsequent loss is more amusing than convincing. As long ago as 1914 I heard rumours of a large tailless ape in this part of South America. In particular, one of my students, a native of Ecuador, persistently and sincerely averred that the existence of such a primate in the tropical forests of that region was generally recognized in his country. I offer this corroborative evidence for whatever it may be worth.

However that may be, I doubt that the theory of ologenism will receive much approbation from students of primate evolution.

Dr Montandon discusses in some detail anthropometric measurements and methods and criteria of race. He is thoroughly conversant with all of these. He finds, apparently, nothing of any value in the methods of Pearson and the Biometric School. Some of his criticisms are perhaps just, but it seems to me that he goes too far. He empties out the baby with the bath-water.

E. A. HOOTON.

FARMS AND FANES OF ANCIENT NORWAY: the place-names of a country discussed in their bearings on social and religious history. By MAGNUS OLSEN. English translation, Oslo: H. Aschehoug and Co.; London: Williams and Norgate, 1928. pp. 349 with sketch map and illustrations. 8s. 6d.

In ANTIQUITY for June 1928 Professor Magnus Olsen's researches were mentioned by the reviewer of a previous volume in this series by Dr A. W. Brøgger. Dr Haakon Shetelig's *Préhistoire de la Norvège* (1926) was a notable forerunner in this valuable group of books, in which eminent Scandinavians are summing up the results of field-explorations carried on through the past century. And as Norse is not generally read, they are wise in providing translations and making their work accessible to all. This volume is very readably translated by Th. Gleditsch, and its novelty in scope is sure to stimulate any reader to whom the question has occurred—When we have collected and interpreted our own place-names, what next?

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Professor Magnus Olsen's method is to classify and correlate his finds, digging down through the strata of successive ages like the explorer of a Roman site, until he is able to give an account of the social history of the country from the evidences, checked by archaeology, philology and other information that can be brought to bear upon the subject. In such a new adventure, criticism of details must be of less value at present than an attempt to sketch the main argument of the book.

He begins by distinguishing the place-names given by inhabitants from those given by travelling strangers. For example, along the coast is a string of islands of which the names are foreign; they must have been landing-sites in prehistoric times when Norway was the 'North-way' for trading-adventure to the Arctic, possibly when the country inland was hardly settled by a farming population. Then, taking the farm-names, he works back from the historical period, tracing the comparative ages of words used as elements of compound place-names. Such a word as *ruð* (riding or reclaimed land) he finds applied to new farms formed by thralls and others of an inferior class, beginning in the eleventh century. Earlier than that are the large classes of names containing *stadir* (stead), *setr* (seat; not the same as *sæter*, shieling) and *land* (with more of the meaning of a shieling, or ground lying out from the original main farmstead). These are mainly of the Viking age though some 'steads' can be followed back to the fifth or sixth century A.D., and they imply secondary settlements founded by cadets or retainers of the ancient families whose ancestral homes are still known by the very ancient word *heim*. Of these, some are shown by philology to date as far back as the fourth and fifth centuries, and a few contain relics of the earlier Iron Age. Another word, *vin* (meadow) can be referred by similar arguments to the third and fourth centuries A.D., and must indicate the homes of important families in what is called the Roman period of Norse antiquities. But even these are secondary settlements, implying still earlier centres which are found with uncompounded names; because the earliest stay-at-home population called their house simply 'the house', or by some natural feature which distinguished the site. And alongside of these simple and archaic names are not a few which cannot be explained by even the oldest Norse vocabulary; they must have been given in some ancient Germanic language by travellers or immigrants such as Shetelig has shown to have come into the country about A.D. 300. Geographical considerations also indicate the priority of such sites, and when Bronze Age remains are found upon them, the probability of their survival from very early times is argued, supporting the view advocated by Shetelig that the population of Norway has been continuous from the beginning.

Turning now to what our author calls in his title the 'Fanes', we note how many parishes have been named from heathen sites on very ancient farms where the godi or chief had a *hof* (temple). This word appears to have come into Norway about the seventh century, giving a limit to the date of these place-names. The *høgr* (altar of stones) usually preceded the temple; it was the primitive centre of the worship of Frey and other gods of fertility, served by priestesses, in the older form of Norse religion. And names in *haugr* (howe) connect with archaic cults of the dead, in the north of Norway; in some cases the finds at such howes take us back to the fifth or fourth century A.D.

This rough sketch of the contents gives a hint of the highly curious and fascinating study which is here opened out. To most it will break fresh ground; some of these excursions may seem to advance almost too boldly into the mist, but the careful and documented reasoning of Professor Magnus Olsen ought to encourage the reader to make the adventure under such able guidance.

W. G. COLLINGWOOD.

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L'ART MUSULMAN. By HENRY MARTIN. Paris: R. Ducher, 1926. pp. 64, 14 plates and 29 figures in the text. 9 francs unbound, 15 francs bound.

This is the fourteenth volume of a popular history of art under the title *La Grammaire des Styles*. As it is printed in very large type and as about half the total number of 64 pages are devoted to illustrations, the letterpress consists of barely 10,000 words; but in that brief space the author contrives to give a very fair description of the chief characteristics of Muslim art in all countries. He agrees with M. Saladin in dividing the vast extent of his subject into five local schools: Syrian and Egyptian, Moorish, Persian, Turkish and Indian. The Moorish school, as is only fitting in a French book, receives the fullest treatment of all, for its territory included Algeria, Tunisia and Morocco as well as Spain and Sicily; and the author places it in the front rank of Muslim art, though he confesses that in constructional skill the Egyptian and Persian architects were superior. He gives us the interesting information that 'Mogreb', the name given by French writers to the group of countries where Moorish buildings are found, is an Arab word meaning 'the land of the setting sun'. The illustrations from Fez and Marrakesh in this chapter are well chosen, and form a pleasant relief from the inevitable but somewhat hackneyed examples from the Alhambra, Cairo and Constantinople, which form the bulk of the subjects. Most of the illustrations, both photographs and line-drawings, are excellent; but the elevation of part of Ibn-Tulun's mosque at Cairo (plate v) is very poor. The author's careful description of the beautiful mosque of Qayt-Bay at Cairo is misleading, for there are two buildings of that name: one within the city and one in the Eastern cemetery outside, commonly called 'the Tombs of the Caliphs'. The author's description with the accompanying illustration (plate ix) refer to the mosque of Qayt-Bay 'intra muros', but in fact it is the example *extra muros* that is described and illustrated. It is significant that almost every illustration in this little history of Muslim art should depict architectural subjects, or ornament applied to buildings. The only exception is the fine Persian carpet (p. 12). The easel picture was practically unknown in the Muslim world, as was all figure-sculpture, for its Founder forbade the representation of natural forms, and only in later Persian and Indian miniatures (mentioned on p. 54) do we find this ban disregarded to any extent. The nature of Saracenic ornament, with its elaborate geometrical basis, is admirably outlined here, and the author points out that a severely conventionalized type of acanthus foliage is used freely in such ornament, especially in 'Mogreb', where it is often combined with pine-cones, palmettes and shells. The book includes an argument in favour of the term 'Muslim' (or *musulman* in French) rather than 'Arab', 'Saracenic' or 'Moorish', as applied to this art.

MARTIN S. BRIGGS.

CEYLON JOURNAL OF SCIENCE, Section G, Archaeology, Ethnology, etc. Edited by A. M. HOCART. Vol 1, parts 1-4, pp. 210, with 93 plates. 1924-28. Vol. II, part 1, pp. 71, with 36 plates. 1928. *Ceylon: The Archaeological Commissioner*; London: Dulau and Co. Ltd. Rupees 3.50 per part.

In (or about) 246 B.C., in the reign of the great Asoka, a branch of the sacred 'Bo-tree' of Bodh-Gaya was planted in Ceylon to be a life index of the little colony from Gangetic India which had settled in the island a few generations earlier. The tree still lives, and the Sinhalese are still a nation. Their national vitality, however, is in no sense the result of isolation. Ceylon lies on the great highway of commerce between Europe and the Far East, the route controlled in turn by Rome and China, by Islam and

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Christendom. But it was from the mainland of India, especially from the Tamil nations of the South, that alien aggression was most persistent. The national chronicle, with its 2300 years of continuous history, is an amazing record of a great tradition which has held its own against armed invasion and peaceful penetration, usurpations domestic and foreign, partitions and religious revolutions. Pressed back from the coasts, the Sinhalese contested every foot of ground, and time and again retaliated. From their highland strongholds they defied the Portuguese, the Dutch, and the British; and though in 1815 they ceased to be a sovereign state, they are still true to their national manners, and, in its purest surviving form, to the Buddhism that Asoka preached.

In spite of its unique value to the student of human culture, Sinhalese history is not as well known as it should be. The evidence is abundant, but much of it still lies scattered in fever-ridden jungles or in administration reports and other ephemeral publications almost as inaccessible, and little has till recently been done to piece them together into intelligible pictures.

A new epoch in Sinhalese studies began in 1924 with the appearance of Mr H. W. Codrington's *Coins and Currency of Ceylon*, vol. 1 of the *Memoirs of the Archaeological Survey*, and the *Ceylon Journal of Science*.

The *Journal*, 'established by the Ceylon Government for the publication of scientific and other researches', consists of seven sections, each published separately under its own editor. Of these, section G is devoted to Archaeology, Ethnology, etc.

Mr Hocart is an ethnologist of ripe experience. He rightly refuses to regard Sinhalese culture as an insular phenomenon. In three important articles on the origin of the Stupa, India and the Pacific, and the Indo-European Kinship System, he links Ceylon with Britain and Fiji. With the same wide outlook he discusses money, thrones, coronation rites, the four quarters, and the guest, while Mr S. Paranavitane, in a masterly survey of Mahayanism in Ceylon, elucidates a most important period of North Indian influence in Sinhalese Buddhism, and also supplements, with tabular lists of inscriptions and concise notes on their salient points, the scholarly but more leisurely issues of *Epigraphia Zeylanica*.

But the chief interest of the *Journal* centres in Mr Hocart's search for criteria by which the archaeological evidence can be dated. In this the chronicles give less help than one would expect; even monuments which can be identified have too often been repaired or rebuilt beyond recognition. Tradition seems sometimes positively perverse. Coin finds are few and fitful, and are not necessarily contemporary. Inscriptions are rarer than in India; they are less informative and appear only at spasmodic intervals. Pottery in Ceylon is crude and of little evidential value. The system elaborated by Mr H. Parker of dating bricks by their size fails when tested. But by a patient examination of the monuments themselves, their plans, mouldings, balustrades and sculptures, their 'guardstones' and 'moonstones', the method and materials of their construction, the types of bonding and stone-dressing, the use of brick, limestone and gneiss, of mortise and tenon, of mud, lime and plaster, Mr Hocart has successfully differentiated the crucial features of three main periods of Sinhalese culture, up to about A.D. 1200, viz., I Archaic, II Classical, III Archaistic. For later periods the ordering of the evidence is well in hand.

Mr Hocart is to be congratulated on the firm foundation he has laid for future research. But his articles in the *Journal* are, after all, but chips from his workshop. The finished products are the *Memoirs*. Of these, vol. 1, as already noted, appeared in 1924. It embodies the results of work at Anuradhapura by Mr Ayrton, Mr Hocart's

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predecessor, whose promising career was cut short by death in 1914. Vol. II, on some typical monuments at Polonnaruwa, came out in 1926. Vol. III, on the Temple of the Tooth, was completed long ago, but unfortunately 'no decision has been arrived at about printing it' (Annual Report for 1927-8)! In quality these *Memoirs* are, in every way, a credit to the Ceylon Government and their officers. To withhold them from publication would be a grave disservice not only to the world of science, but also to the valiant nation whose history they commemorate. F. J. RICHARDS.

EXCAVATIONS IN THE TRUNDLE, GOODWOOD, 1928. By E. CECIL CURWEN, M.B., F.S.A.; (reprinted from *Sussex Archaeological Collections*, vol. LXX). pp. 52 and 16 plates. Cambridge: Heffer.

Air-photography has already done much to lighten the task of the excavator in providing him with a knowledge which he would otherwise have to acquire by protracted labour, even when, as in the case of the Trundle, the method of 'ramming' on chalk sites can furnish a preliminary insight into the nature of the ground to be explored. But neither the one nor the other relieves the excavator from constant vigilance if he desires to obtain the full value of his discoveries. That this condition has been fulfilled by Dr Curwen and his helpers, this report amply testifies.

Within the ramparts of an earthwork of the Iron Age, and in part overlain by them, were discovered typical interrupted trenches of a Neolithic encampment, which, so far as the excavations went, showed no traces of disturbance by later Bronze Age settlers. The later fortifications seem to cover a period from late Hallstatt to La Tène II, possibly a late survival of that phase.

The exploration, partial though it was,* is a valuable contribution to a growing volume of knowledge about the hilltop sites in Britain. Most of them are too large to allow hopes of thorough exploration at the present time, but a series of similar excavations would throw a flood of light on the occupation of Britain in prehistoric times, would sweep away a lot of baseless conjecture, and in so doing provide a solid basis for future workers. A *sine qua non* is a careful report like that on the Trundle, and, if it can be illustrated with drawings which are equally successful in rendering the quality and texture of the finds, notably here of the Neolithic pottery, so much the better. E. T. LEEDS.

IRELAND'S PLACE IN PREHISTORIC AND EARLY HISTORIC EUROPE.

A Translation of an Essay by the late WALTHER BREMER. Dublin: Hodges, Figgis and Co. 1928.

Walther Bremer had been barely a year Keeper of Irish Antiquities in the National Museum of Ireland when, in November 1926, he died prematurely in the 40th year of his age. He had had experience both as a teacher of archaeology and as a museum administrator, and this essay was originally written by him in German as a contribution to a memorial of the 75th anniversary of the Mainz Museum, of which in former days he had been an assistant. A translation of the essay has now been published jointly by the Royal Irish Academy and the Royal Society of Antiquaries of Ireland as a tribute to the memory of the author.

As the essay of 38 pages covers the whole period, from Neolithic times to the coming of the Anglo-Normans, the treatment is necessarily very much condensed, but

* It has been resumed this year.—ED.

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nevertheless it shows a masterly grasp of the subject. The author stresses the view that Ireland derived her early culture from Northern Spain. He instances the hand-axe or coarse chopper from Island Magee, the hemispherical vessels of pottery with coarse decoration, and the strange markings on the Clonfinlough stone, as all pointing to a close connexion with the Iberian Peninsula.

'With the discovery of native copper in Ireland there begins', he says, 'the first great efflorescence of Ireland, during which the Green Isle was the centre of industry in northwestern Europe'. This is a bold claim. It covers the first period of the Bronze Age, which according to him, is to be dated about 2500-1900 B.C. It was partly due to the alluvial gold of the Wicklow Hills. In proof he adduces the distribution, as worked out by Coffey and Mr O. G. S. Crawford, of lunulae, sun-discs, and (later) 'twisted gold rings of the Tara type', commonly called torques. He notes however that it was to her native copper, rather than to her native gold, that Ireland owed her industrial pre-eminence. 'There can hardly be any doubt', he says, 'that the knowledge of metal-working has made its way to the western Baltic from Ireland through Scotland'. This is indicated by the finds in that region of bronze halberds and ornamented axes of recognized Irish type. But in the latter part of the second period 'there fell upon this country a long period of slackness and stagnation', as shown by the cessation of imports from Ireland in the region beyond the North Sea on the east and beyond the Channel on the south. We find, on the contrary, the influence of the Scandinavian-Germanic North on Ireland, as for instance in the case of the spiral whose course has been traced by Coffey. In Ireland the spiral has been found concentrated in the region north of the Boyne. To this Bremer and others have found an exception in the Hollywood Stone with its perfected labyrinth pattern, suggesting at first sight the appearance of a spiral with a cross in the centre. This was found near the Wicklow Mountains, but the present writer has given some reasons* for thinking that this particular design reached Ireland in the early Christian period—at the time of that 'second efflorescence of Ireland', recognized by our author and indeed by all writers of Irish history, and due to monastic influence under the inspiration of the new religion.

GODDARD H. ORPEN.

REPORT ON THE EXCAVATIONS OF UISNEACH. By R. A. S. MACALISTER and R. LLOYD PRAEGER. *Proceedings of the Royal Irish Academy*, vol. XXXVIII (c), pp. 69-127. Dublin: Hodges, Figgis and Co. 1928.

The Hill of Usnagh (*Uisneach*) in Westmeath is one of the most famous sites appearing in the early dawn of Irish history. On it still stands a great rock, called by Keating 'Ael na Mireann', (The Rock of the Divisions) because, as he says, the four provinces met there until Tuathal Teachtmhar in the 2nd century A.D. took a portion of each to form the kingdom of Meath. A similar story is told by Giraldus Cambrensis, who says the stone is called the 'Umbilicus Hiberniae'. This rock appears to have been known also as 'Petra Coithrigi', or Patrick's Rock, about which two slightly variant stories are told in Tirechan's memoirs and in the Tripartite Life. There is, moreover, some ground for thinking that St. Patrick founded a church near by, for an early list of bishoprics, quoted by Camden, (ed. Gibson 1695, p. 975), is headed by the 'Bishopric of Meath or Elnamirand'. But whatever doubt may be cast on these early traditions, it is clear that this hill was one of the four great assembly places of Meath: the others

* *Journal Royal Society of Antiquaries of Ireland*, 1923, LIII, pp. 177-189.

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being Tlachtgha, Taillte and Teamhair (Tara). The assembly at Uisneach took place on Bealtaine, (May-day), when fires were lit in honour of the god Beil, and cattle were driven between them to preserve them from disease—a custom which in some places has only recently died out. Surely here we might expect careful excavation to yield some interesting results.

In reading this report, we cannot fail to recognize the great care with which the authors have described the Hill of Usnagh—both the external appearance of the numerous monuments thereon, and the complex results of their excavation of the 'Hill-top Enclosure', the principal monument on the hill. Here, four periods are distinguished. To the first is assigned a circular ditch, 156 feet in circumference, and several post-holes, all afterwards filled up. These last, though irregularly placed, are supposed to be traces of a wooden sanctuary, somewhat similar to that whose former existence was disclosed by aerial photography near Stonehenge. In the filling of this circular ditch was found a pin of a penannular brooch, with simple La Tène ornament, incised and inlaid with silver. This would necessarily belong to one of the later periods, and with other objects described as late La Tène, would suit very well the period of about a century from the year 150 A.D., when Tuathal Teachtmhar and his successors are believed to have resided at Usnagh, until Cormac Mac Airt transferred the seat of the monarchy to Tara. A building, in a sort of later annexe on the west side of the main enclosure, is regarded by the authors as the 'palace of King Tuathal'. If so, we must humble all notions of the magnificence of these early Irish kings, for above ground there is evidence of only one chamber, 17 ft. by 15 ft., with rough walls of stones and mud, while underneath is a narrow souterrain with a maximum height of 5 ft. To an earlier period must be assigned a bed of ashes, charred bones and burnt clay, 10 ft. across by 6 in. deep, suggestive of a sanctuary where a fire was kept up and burnt sacrifice offered. This, and other marks of fires, seem to bear out the traditions, preserved in different forms in the Dindseanchus and Keating, of great fires associated with the hill. The authors give a list of 120 objects, mostly of iron, found within the enclosure. The almost complete absence of human remains shows that the enclosure was not a cemetery. It is harder to account for the entire absence of pottery, and the authors are driven to suppose a taboo. Careful plans, photographs and drawings help the reader to visualize the evidence disclosed, and to appreciate the complicated problems involved.

We are glad to hear that further excavations have been undertaken, with important results, on another site on the hill.

GODDARD H. ORPEN.

EXCAVATIONS IN BALUCHISTAN 1925, SAMPUR MOUND, MASTUNG AND SOHR DAMB, NAL. By H. HARGREAVES. *Memoirs of the Archaeological Survey of India*, no. 35. Calcutta, 1929. pp. iv, 89, with 24 plates. 16s. 3d.

Mr Hargreaves expresses some disappointment that his work has not provided definite links between the civilizations of Mesopotamia and the Indus valley. We cannot share that disappointment. He has given us an exemplary publication of a thorough piece of work, in a region which is still archaeologically a blank. This is exactly what we need, and it is to be hoped that the work will be continued in the same manner. For surely it is not to be expected that a few weeks excavation in a country of the size of Baluchistan would yield at once a section through precisely those centuries of its civilization, which we are able to interpret in the light of discoveries in adjacent regions.

Sampur Mound, Mastung, 33 miles south of Quetta, seems to have been a small fort,

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built on an artificial foundation on the top of a hillock. Lower down, in the sides of the mound, large vessels were found at various levels, but no traces of floors or walls, though occasionally a mud brick could be recognized. Perhaps weathering and pressure of earth in the mound has obliterated the traces of constructions. Perhaps, also, these jars, merely buried in the ground, contained, as Mr Hargreaves suggests, the stores of grain of some semi-nomadic population, which could not carry all its provisions with it. A fine silver cup, over 4 inches high, of a shape also found in the Indo-Parthian strata at Taxila, and some Indo-Scythian coins, indicate the age of these remains. 'The site must have been occupied for some considerable time before and after the Christian era, and have been abandoned long before the Muhammedan invasion, and never afterwards occupied'.

At Sohr Damb, Nāl, trenches revealed a necropolis consisting of oblong burial vaults, with mud brick walls on stone foundations, orientated to the cardinal points. Each contained more than one interment. The exceedingly careful observations of Mr Hargreaves (see especially pp. 23, 24), give us complete certainty that we meet here 'fractional burials', that 'the bones were buried as bones and not as part of a body clothed with flesh'. Occasionally complete interments were found, but mostly of children; only once of an adult who was buried lying on the left side, head towards the east, face southward, knees slightly bent. As children are often interred without the usual funerary rites being observed, it remains to be cleared up whether the adult represents an exceptional case or whether two modes of interment were in use side by side.

Amongst the objects found the pottery takes the first place. It is beautifully decorated, but the colours (blue, green, yellow, red, black), of which one can get an impression in an earlier publication of Sir John Marshall (*Archaeological Survey of India*, 1904-5, pl. 33), can all easily be rubbed off. We would not agree with Mr Hargreaves that this indicates that the vessels were intended for funerary use only; some binding material, such as alumen, may have decayed. The question whether this pottery can be brought in connexion with any of the wares known in the Near East can only be answered with great reserve; but I am inclined to be a little more positive than Mr Hargreaves and to suggest that it is not unlikely that the wares belong to the Highland Culture which finds its best exponent in Susa I, but is now known to have extended all through Persia, and dominated, at an early date, Mesopotamia (*Antiquaries Journal*, October 1929, 345 ff). The differences are very great, but so is the geographical distance between Susa and Nāl. The main motives on either side differ, but their 'syntax', the way they are put together on the vase, is sometimes not dissimilar: in both cases bowls are mostly decorated on the inside, sharp-shouldered pots on the shoulder only. There is, in and near Susa, and in Nāl, as Mr Hargreaves has noticed, some inclination to stress with a step-design the diagonal of an oblong panel (pl. XVIII, 8, 16). The trio of shapes from Susa I: beaker or cup, open bowl, and small closed pot, prevails also in Nāl, where the small pots have no lug-ears, and show sometimes the same shape as those of Susa I, sometimes however they are strangely canister-like. The Nāl shapes are certainly more advanced than those of Susa I, but not more than those of the Mesopotamian descendants of the Highland Culture; these however developed on lines of their own, diverging, as the Nāl pottery did in another direction, from a common origin, which is perhaps best reflected in the pottery of Susa I. A few isolated resemblances in the decoration of the pots from Nāl and from Susa should be noted (cf. pl. XVIII, 12, with *Mém. Délég. en Perse* XIII, pl. XXXI, 9; XLI, 5; and pl. XVIII, 10 with *Mém. XIII*, fig. 135). The fact that these resemblances affect shapes, and also details

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of decoration as well as principles of composition, makes the assumption of some distant relationship a rather attractive hypothesis. On the other hand Mr Hargreaves has pointed out that one decorative design, and the shape of a stone weight, find parallels in the Indus valley.

It is indeed time to turn to the other finds from the necropolis. Some parallels might probably be found among the new finds in Mesopotamia, for the beads from Sohr Damb, but this involves a far-reaching research on a subject hardly touched as yet. The one steatite seal, showing a vulture on a serpent, would hardly fit in a collection of Near Eastern seal-stones. But the implements of the site are remarkable. Flints and flakes of chert or obsidian, so numerous on the western sites and also in the Indus valley, are conspicuously absent. This is the stranger as some copper tools are imitated in stone, and thus suggest that the metal age was still young when the necropolis was made. This apparent rarity of metal, may however, be a sign of poverty only. The shapes of the tools, axes, adzes, daggers, a fragment of a saw, are not very primitive, but such have been used in the A-cemetery at Kish as well as at Mycenae. But tools are untrustworthy as dating evidence, on the whole. (Incidentally the only blemish of this excellent work is the absence of an analysis of the implements, to show that they were copper and not bronze, and to bring them in line with the analysis of the Committee of the British Association, which inquires into the origin of copperworking). I should date the graves, almost as a guess, in the second half of the third millennium. It may be mentioned that lead and silver were also smelted.

The second half of the volume is devoted to a very thorough and interesting study of the (dolichocephalic) skull and some other bones from the necropolis, by Lt. Col. R. B. Seymour Sewell and Dr B. S. Guha. In the discussion the latest discoveries of human remains at Kish and Ur are taken fully into account. We may here only mention that Dr Hall's theory of an Indian origin of the Sumerians is refuted, because according to Mr L. H. Dudley Buxton the true Sumerians would be the brachycephalic, and not the dolichocephalic, people found at Kish. This, however, need not be assumed, and the extant sculptures are, if early, too clumsy to be of documentary value; and, if late, figure people of a mixed descent: *de Sarrec* pictures brachycephals and dolichocephals on one plate of sculptures of Gudea's time. The brachycephalic strain in the Mesopotamian population may, as Professor Christian has suggested, be the Armenoid Subaraean stock from the North. But if prehistoric Indians, Sumerians, 'Semites', and Egyptians (to say nothing of the long-barrow people of England) all belong to the 'brown' or Mediterranean race (and on this point Sir Arthur Keith and Professor Elliot Smith agree), we cannot expect much help from physical anthropology in our study of early civilization.

H. FRANKFORT.

LAS EXCAVACIONES DEL SERVICIO DE INVESTIGACION EN 'COVA DEL PARPALLO'. By I. BALLESTER TORMO. *Cultura Valenciana* IV (1929), no. 3. pp. 82.

The lately-established Servicio de Investigación of Valencia can already boast a respectable list of excavations carried out under its auspices, but Sr. I. Ballester Tormo believes that the exploration of the Cova del Parpallo (Gandia) is, as yet, the most interesting and the most important of its undertakings; therefore in a short preliminary notice he tells us something of the treasures lately brought to light here by this fortunate band of Valencian archaeologists. In deposits that were well-nigh undisturbed Sr.

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Tormo and his friends have found some 10,000 flint implements (1,000 of Madeleine types, and others showing affinities to the Asturian pick), a quantity of bone tools and harpoons, a huge stack of animal bones, and, most precious of all, a long series of engravings on stone. There are, indeed, a full hundred of these last, about sixty of them bear animal engravings while the rest show geometrical designs that await interpretation. The cave has also yielded a number of stone slabs daubed with red paint, and though some of these are supposed to have been palettes, others of them bear intentional designs.

This is the first Madeleine cave of the East Spanish coast and a detailed account of the rich and remarkable series of finds made therein will be awaited with impatience. In the meantime English archaeologists, on hearing of this notable discovery, will want to offer to Sr. Tormo and his colleagues their felicitations. T. D. KENDRICK.

THE ASSYRIANS AND THEIR NEIGHBOURS. By REV. W. A. WIGRAM.
London: G. Bell and Sons, 1929. pp. 242, with 14 illustrations, bibliography, index and map. 15s.

In the eighth century A.D.—the days of Harun-ar-Rashid—twenty-five metropolitan archbishops owed allegiance to Timothy, Patriarch of the Nestorian branch of the Syriac-speaking Church, and members of his communion were to be found as far west as Cyprus, as far south as Sumatra, as far east as Tibet and China. The earliest Arab scholars were making the acquaintance of Plato and Aristotle at the Nestorian Colleges at Nisibis and Seleucia, and the Commander of the Faithful himself did not disdain to seek and to follow Timothy's advice in a delicate domestic situation (p. 81). These were the great days of the Nestorian Church, which—because it occupies the native land of Sargon and Sennacherib and consists (as he believes) of direct descendants of the peasants who fought in their armies—Dr Wigram prefers to call 'The Church of the Assyrians'. The Assyrian Christians shared in the general havoc caused by repeated Turkish and Mongol invasions of Mesopotamia from A.D. 1000 onwards; but they remained in the land of their fathers until, at the end of the 14th century, the Mosul-Erbil district where they lived was depopulated by Timur, and those who escaped were forced to seek sanctuary amongst Moslem Kurds in the Hakkari mountains. There their descendants remained until the Great War, still governed by a Patriarch, half archbishop, half chieftain, still preserving their ancient faith, their ancient customs, and their ancient language.

In 1915 they solemnly declared war on Turkey, but in spite of brave resistance to Turkish attacks, they were dislodged from their mountain villages at the end of the year, and in 1918 the forty or fifty thousand of them who survived were living in a refugee camp at Baqubah near Baghdad. Today they remain as one of the minor problems which face the king of Iraq. The League of Nations has refused their request to be allowed to return to their old homes under the League's protection; and they are left in Iraq, mountain folk who hate the plains, 'not numerous enough to be a political danger, though it is certain, unfortunately, that they can be a political nuisance' (p. 238).

Dr Wigram tells the story of the Assyrian Church from the 2nd century, and tells it most attractively. We cannot check his statements, for he gives no detailed references to original sources; but, in all that concerns the Assyrians of the present day, we can accept his own authority, for he has spent many years amongst them as head of 'the Archbishop of Canterbury's Mission to Assyrian Christians', and has an intimate knowledge of their ways. His descriptions of them are very pleasant to read. It is

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interesting to meet Christians who still occasionally offer an animal sacrifice (p. 190), a bishop who leads a successful infantry attack (p. 238) and another who breaks his pastoral staff in the exercise of fatherly discipline (p. 203); to read an authentic letter of invitation which ends with the words 'if you do (visit me) I shall be proud to receive you; if you do not, my honour will make it needful for me to shoot you, so I hope that you will come' (p. 205); to be reminded of a justification of the practice of 'Reservation' and a use of the Reserved Sacrament which were never even mentioned during recent discussions of the Book of Common Prayer (p. 196).

Equally interesting is Dr Wigram's account of the past history of the Assyrians, of the nations and individuals with whom they came in contact, and of the origins—almost without exception political rather than religious—of the 'unhappy divisions' of Syriac-speaking Christianity. Here the scholar may wish that the author had given in detail the authority for his statements, but the ordinary reader will be content to enjoy a wonderful pageant of romantic figures:—Addai and Mari, saints and evangelists; Bardaisan and Mani, heretics; Harun-ar-Rashid at variance with Zubeydeh his wife; Tartar converts to Christianity confronted with the problem how to celebrate the Eucharist when bread and wine were unknown to them; Saladin and Prester John; Jenghis Khan and his grandson Kuyuk who sent a famous message to the Pope; Archdeacon Soma, a high-born Chinese Christian, received at the English court and administering the Blessed Sacrament to Edward I of England; Nestorian Christians in Malabar outwitting their Portuguese Roman Catholic conquerors by turning Monophysite. These and many other equally picturesque figures pass before us in Dr Wigram's pages.

It would be surprising if, in a popular narrative which covers so long a period in so short a space, one did not find one or two statements which need correction or qualification. It is misleading, for example, to say that 'the Syriac language is the direct derivative from Hebrew and Assyrian' (p. 27); that 'one of the Gospels . . . is known to have had a Syriac original' (*ibid*); that a Scythian invasion of Palestine in 600 B.C. (*sic*, p. 93) left its impress on the words of the prophet Zephaniah (who spoke, if the Bible can be trusted, between 639 and 608 B.C.); to suggest that the modern Assyrians used 'a form of the same . . . script as their predecessors' (i.e., as the context shows, the ancient Assyrians, p. 184); to imply that the sacred books of Zoroastrianism still exist in their original form (p. 33); that we have means of knowing whether 'the scribe Ezra wrote sometimes in Syriac, sometimes in Hebrew' (p. 180); that the days of Darius and Xerxes (or even of the whole Achaemenid dynasty) extended from 600 to 300 B.C. (p. 11); that a thousand years have elapsed since the Seljuk Turks invaded Anatolia (p. 99). These, however, are small and relatively unimportant blemishes which scarcely diminish the value of an unusually interesting book, for which all who care for the past history of the Christian Church or for the present condition of Mesopotamia owe Dr Wigram their thanks.

F. S. MARSH.

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Editorial Notes

THE exhibitions and excavations of last summer revealed very clearly the methods and aims of modern excavators. Both Ur of the Chaldees and Verulamium are big sites in every sense, and they are being excavated on a big scale. The art of excavation has now, in fact, reached maturity; the director knows what he wants and he knows how to get it. He starts with a programme to carry out, and he thinks in terms of years, or seasons. He is no longer a mere grubber up of ruins or of clay tablets or museum specimens, though these naturally have their place in any well-ordered scheme. He is out to solve certain problems by methods whose efficacy has been proved by experience.



Ur and Verulamium provide peculiarly good examples of intelligent direction of excavation on a large scale, where the site has already been chosen, or (as at Verulamium) imposed by circumstances outside archaeological control. There is scope, however, for the same discrimination; first, in the selection of sites or regions, and then more broadly still in the preliminary choice between excavation and some other branch of research. First, if it has already been decided to excavate somewhere, and it remains only to select a region, how shall the Committee or Directors come to a decision? They may either follow precedent or they may strike out a new line. They may vote

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for some already well-excavated country or group of sites; or they may take stock of the World and select one of its darker corners. There are many such available. Central Europe contains stratified mound-sites that still await an excavator of the first rank. South-western Anatolia (the ancient provinces of Caria, Lycia, and Pamphylia) is a virgin field, whose possible Cretan connexions are still mainly conjectural. There are similar openings in Nigeria, Baluchistan, and Turkestan, to say nothing of China.

But excavation is costly and trained excavators are none too common. Suppose that for motives of economy or otherwise, it is decided not to excavate. What are the alternatives? There is always the possibility of an air-survey of the ancient sites of a region. This has never been attempted, outside England, for purely archaeological purposes. It is sure to be moderately costly at the start, but will probably not prove more so than excavation on a large scale, and most of the expenses will be non-recurring. It has the great advantage of providing an immediate return for the outlay, in the form of photographs. Then there is ground-survey—the exploration of a little-known region for the purpose of discovering ancient sites and placing them upon the map; of following ancient roads; of copying inscriptions; of noting the character of surface-finds on a *tell* and drawing therefrom (if possible) conclusions with regard to its age; and so forth. The French are doing much exploration of this kind in northeastern Syria.

The present time is peculiarly suitable for carrying out one or both of these undertakings. To take a concrete example:—An international committee is organizing the compilation of a map of the Roman Empire. The results are being published on the International Map of the World on a scale of 1:1,000,000 (16 miles to 1 inch). The first sheet (part of Great Britain) has just been published, and others will appear shortly. This country is responsible for sheets covering British mandated territory, which includes of course Palestine and Transjordan. To compile a map of this area as it was at the beginning of the Christian era is a big task, and to do it properly will cost money. It can only be done by someone on the spot and he must do a lot of field-work. Even though no more than a skeleton map is contemplated by the Commission, it will be necessary to identify on the spot the

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exact sites of the stations recorded in the Antonine Itinerary and on the Peutinger Table. The problems to be solved are relatively easy but the work will take time if it is to be done properly. Ways and means need not be discussed here, but one would imagine that the best method might be the creation of some kind of *ad hoc* research studentship.



Here is a chance for the coordination of research ! Here we have on the one hand a comprehensive and practical working scheme, and on the other an obvious means of assisting it. Everyone will agree that a map of Palestine as it was in the time of Christ would be an invaluable possession. It can be produced within a very few years at a fraction of the cost of a single season's excavation. If the help of the aeroplane can be secured as well, so much the better : it is almost essential to the success of the scheme.



To sum up, we may say that while there is room for properly conducted excavations in certain regions, there are other ways of advancing knowledge which offer a bountiful return for a very moderate outlay.



After all, nearly everyone likes studying a map or looking at pictures. No one has ever said there are too many maps, though it is often said (and we agree) that there are far too many books—not only novels but books and pamphlets which are learned in the worst sense and quite unreadable. A map synthesizes a host of facts and takes up very little room. We want less excavation and less scribbling but more maps and more air-photographs !



Orientation is a thorny subject. In *ANTIQUITY* we have published articles on both sides. We have our own opinion on the matter, but mere opinions are of little value. It is not a subject that we have ever studied very deeply, and it is getting rather threadbare nowadays. We much regret that in the article by George Engleheart, F.S.A., on Orientation, published in our last number, there occurred expressions to which Mrs Cunningham takes exception, namely, that the Woodhenge excavators 'surely *desired* to collate Woodhenge with Stonehenge in

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respect of orientation'; and that the 'adaptation of data to theory appears in the hypothetical orientation of Woodhenge'. Mr Engleheart assures us that by these expressions he did not in any way imply that the excavators were determined to press or distort facts to fit a preconception, but that he meant no more than this—that the excavators, struck by a general similarity in plan of the two monuments, were glad to think they discovered facts which, in their sincere belief, enabled them to find the several features of Stonehenge, including that of orientation, which they accept, matched in those of Woodhenge.



We have also received a letter from Vice-Admiral Boyle-Somerville which we regret we have not room to print in full. The writer refers to his own papers on Orientation, published in *ARCHAEOLOGIA* (vol. 73) and in *ANTIQUITY* (vol. 1, March 1927). He claims that the facts are there for anyone to see, and suggests that field-observation with instruments is a test of orientation and recommends it to sceptics. We wish to be perfectly fair to both sides, but we think that our readers will now have heard enough about orientation, to say nothing of Stonehenge; and we therefore promise them a truce for, say, five years.

VOLUME V

With the present number the fourth volume of *ANTIQUITY* is completed and expressions of appreciation continue to reach us. At the same time the number of original subscribers inevitably becomes gradually smaller—through the operation of natural causes—not, we are glad to know, through dissatisfaction. We would again point out that our supporters can help us by bringing *ANTIQUITY* to the notice of their friends. Last year quite a number of subscribers adopted the editorial suggestion of making a Christmas present to a friend in the form of a year's subscription, and we are sure that this can be extended to mutual advantage and satisfaction. With this issue we insert a renewal notice for subscriptions for 1931 and as we have said before an early response is a very great convenience. We have endeavoured to omit the form from copies sent to those who make their payments through banks, or who have paid in advance.

Submarine Discoveries in the Mediterranean

by A. MERLIN*

Membre de l'Institut de France, Conservateur au Musée du Louvre

HIDDEN beneath the Mediterranean is a matchless collection of antiquities; but for centuries the sea has jealously watched over its treasures, allowing us no more than an occasional peep. Sometimes when a harbour is being deepened the dredger brings up an important specimen, such for instance as the massive silver patera with designs in gold, a splendid example of Alexandrian art, now in the Bardo Museum at Tunis; or the bronze statuettes from the harbour of Bona (found in July 1912), one of which, representing a girl—unfortunately headless—seated on the ground, is a rare combination of grace and artistic skill. At other times again it is the lucky haul of a fisherman which gives back to us a fine piece of sculpture. Thus it was that in 1832 near Piombino there was fished up out of the sea the Apollo of the early 5th century B.C. which is the pride of the Salle des Bronzes in the Louvre. Other objects found in the same way are the fine bronze headless statue of a boy found near Eleusis in 1879, and acquired by the Berlin Museum from the Sabouroff collection; Poseidon holding a dolphin, of the early 5th century, found near Creusis on the Boeotian shore of the Gulf of Corinth and now restored and exhibited at Athens; and the marble Aphrodite found in 1929 not far from Rhodes. One might easily prolong the list.

These discoveries are of great, and sometimes exceptional, intrinsic interest. They come back to us romantically from a mysterious world. But they serve to stimulate rather than to appease our appetite. One must therefore feel peculiarly grateful to Poseidon when he is in a generous mood, and when systematic explorations are rewarded by one of those cargoes of works of art which in a fit of anger he once sank. During the last few years he has several times been almost prodigal of his favours.

* Translated by the Editor.

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CERIGOTTO

The first instance occurred about Easter 1900, near the little island of Cerigotto (Anticythera), which lies off Cape Malea, the easternmost point of the Peloponnese, in waters of age-long notoriety, strewn with innumerable ship-wrecks. Sponge-fishers at work about 20 to 25 metres from the shore observed a compact blackish mass at a depth of 60 metres; it was 50 metres long and consisted of statues and other objects scattered about amongst the remains of a ship. From November 1900 to September 1901 the Greek Government carried out explorations which, by reason of the enormous difficulties to be overcome, especially the depth, underwent many vicissitudes. The pressure which the divers had to withstand only allowed them five minutes of useful work. In spite of all this important results were achieved and many objects, now in the National Museum of Athens, were recovered, though the site does not appear to have been exhausted. The finds include marble and bronze statues, valuable utensils, tiles, and amphorae. The principal specimen is a large bronze statue fished up in pieces but now completely restored (1 m. 94 high): it represents a young man with upraised right arm. (Plate 1). The identification has given rise to much controversy, nor is the issue decided yet. It has been explained as Hermes making a rhetorical gesture, as Perseus holding up the head of Medusa, as the Paris of the sculptor Euphranor, or as a young victor at the games holding a ball. It is a Hellenistic copy of an original produced by the Argive-Sicyonian school of the early 4th century B.C., whose artists combined a typically Peloponnesian energy of style with a more Attic type of countenance. It foreshadows the Lysippean rhythm of the *Apoxyomenos*. The other bronzes are less interesting; the statue of a girl, of the middle 5th century, is headless; a statuette of Apollo standing (0 m. 54 high) is in the style of Polycleitus; another (0 m. 43 high), variously regarded either as a Hermes or a Diomedes carrying off the Palladium, is of a beardless man in the act of advancing with care and decision. Particularly noteworthy is a head of an individualized kind, the copy of a fine portrait-statue of the Hellenistic period. It was at first regarded as that of an athlete, but the long beard, and the untidy appearance and contemplative air betray rather the philosopher. Amongst the broken fragments were arms (one a boxer's, with the hand holding a caestus), feet, and a lyre: these evidently belonged to bronze statues, but others came from a couch whose panels were ornamented with the heads of men and animals in relief.

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In spite of inevitable mutilations, the bronzes appear to be on the whole fairly well preserved when the calcareous deposit and the shells attached to them have been removed. It is otherwise with the marbles, which have been nibbled and bored by sea creatures till in many instances they have been reduced to shapeless stumps. A few of them, however, may be mentioned; though fairly numerous they are hard to identify:—a copy of the Aphrodite of Cnidos; a colossal Heracles, of the type of the Farnese Hercules, and measuring 2 metres 50 in height (7' 6"): on account of its weight it was only with great difficulty removed from the water; two men forming part of a group, one of whom may be Odysseus; a young boy with a rather vulgar face, in a stooping posture, the right knee almost touching the ground, who has been alternately identified as a combatant suing for mercy, a ball-player, a shepherd playing with a girl, and a wrestler; this statue dates from the Hellenistic period (last quarter of the 4th century B.C.) and is a copy from bronze. Lastly there were remains of four horses drawing a chariot.

Amongst the other objects recovered were an iron anchor and, somewhat strangely, some roof-tiles; also some pieces of wood fastened together by iron nails or wooden pins—the remains of the ship; pottery vessels—amphorae, dishes, plates—and glass drinking-cups, evidently those in daily use on board.

It is not easy to be sure of the exact port of origin of the cargo. Several of the bronze statues did not come straight from the workshop, for under their feet are fixed the lumps of lead with which they had been attached to pedestals; the cargo must therefore represent, at any rate in part, some kind of plunder. But the great majority of the marbles are free copies of well-known originals and have plainly been made for export. The Greek archaeologist Svoronos believed that he had practically proved that all these objects of art had been taken from Argos, and had been removed by the order of Constantine to adorn his new capital on the Bosphorus. It was an ingenious theory but it must be discarded, because it is inconsistent with the place and date of the wreck. A vessel sailing from the gulf of Nauplia towards Constantinople has no excuse for being shipwrecked off Cape Malea. Here rather it was a ship going from Greece to the west, such as that spoken of by Lucian, in which Sulla sent to Rome a picture by Zeuxis taken from Athens and which sank in rounding the fatal promontory, or the brig *Mentor*, which was fitted up to convey the Parthenon sculptures to Lord Elgin but which never passed Cerigo. As for the date, two facts

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now enable us to determine it fairly closely. On the metal dial of a curious astronomical instrument, the ship's planetary with explanatory writings on it, occurs the name of a month which was not inserted in the calendar until the year 30 B.C.; the wreck must therefore have taken place after that date. On the other hand, amongst the smaller objects of pottery is a fragment of a basin with ornament in relief which was certainly made at Delos, where the manufacture of this class of ware ceased soon after the beginning of the Christian era. Consequently the misfortune which caused the shipwreck at Cerigotto may be placed in the Augustan period. Sailing perhaps from Athens, the course was set for Rome or some other Italian port with a full cargo of statues destined for sale.

MAHDIA

It was to meet the demand of rich Romans for Greek works of art that about eighty years earlier there sailed for Italy another vessel which, after embarking its cargo at the Piraeus, met the same fate off Mahdia on the Tunisian coast, between Susa and Sfax. Here also the discovery was made by sponge-fishers, at the beginning of June 1907. The depth is less, only 39 metres; but it is quite formidable enough, and it is aggravated by the much greater distance from the shore (4800 metres).

The shipwreck was explored by the Direction des Antiquités de la Tunisie in six successive campaigns (1907-11 and in 1913). Contrasted with that of Cerigotto, which consisted mainly of statues, that of Mahdia included a large number of marble columns; about 60 have been counted placed in seven parallel rows, with a total length of 24 metres. There are also other architectural pieces—bases, blocks, cornices, capitals, especially the last. Probing below has revealed a layer of wood about 20 centimetres thick, representing the deck. Then comes the hold where the more valuable objects were preserved—bronze and marble statues, statuettes and reliefs, fragments of bronze furniture and vessels with delicate reliefs, the remains of large ornamental objects of marble, craters and candelabra. The whole collection is in some respects not unlike that of Cerigotto, but is much more varied. The excavations, if one may so call them, have filled several rooms of the Bardo Museum at Tunis.

As at Cerigotto, too, the bronzes are in general very well preserved. The one which is most impressive is of Cupid, victorious after an archery contest. He has just alighted, and his wings are still outspread; his

PLATE I



BRONZE STATUE OF PERSEUS (?), NATIONAL MUSEUM OF ATHENS

PLATE II



BRONZE HERM OF DIONYSUS, BY BOETHUS OF CHALCEDON, 2ND CENTURY B.C.

Fr. Direction des Antiquités, Tunisie

PLATE III



MARBLE CANDELABRUM, NEO-ATTIC STYLE

F& Direction des Antiquités, Tunisie

PLATE IV



ZEUS THE THUNDERER, NATIONAL MUSEUM OF ATHENS

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right hand by a gesture indicates the newly-won crown ; in his left he holds his bow, now broken. Here we have a good copy of an original of the 4th century B.C., in which various influences, particularly that of Lysippus, converge.

Of less aesthetic value, but sufficiently remarkable for its archaistic style, is a little bronze herm of Dionysus. (Plate II). His beard and locks are curled with extreme care; a long fillet covers his head with fantastic convolutions. By singular good fortune the work is signed with the name of Boethus of Chalcedon, a well-known chaser and sculptor of the first half of the 2nd century B.C.

Two large bronze cornices appear to have ornamented a votive offering, a trophy in the form of the prow of a ship. They are adorned with busts of Dionysus and Ariadne respectively.

There are, besides, eight big statuettes. The three most surprising, two dancers and a clown, are grotesques—dwarfs with disproportionately large heads; they are represented as dancing wildly to the accompaniment of rattles, and are irresistibly comic, especially the girls. They display Greek art in a realistic garb that is not familiar but none the less characteristic.

A graceful Cupid, covered with jewels and charms, the head crowned, dancing and singing to the music of a zither, belongs perhaps to the last trio. Another bronze figurine brings us back to the great traditions of sculpture: a wild-faced Satyr, tall and slender, ready to leap forward—his passionate expressive attitude recalls the works of the Pergamene school. A Hermes of Polycleitan style holds out his right arm in a rhetorical pose.

Other smaller statuettes had been the ornaments of furniture—Satyrs with lank sinewy forms, crouching greyhounds, a comic actor seated on a round pedestal which must have topped a candelabrum. Busts of Niké, Athena, Artemis, and of Maenads were applied in relief on furniture and other objects, together with galloping griffins, heads of Maenads and comic masks. Heads, one of a neighing horse, full of vitality, and several of mules and ducks belonged to bedsteads, like those from Cerigotto. Two lion-heads and two masks of laughing young Satyrs have been re-attached to the sides of a brazier on wheels. The Mahdia ship contained many other objects—vases of every description, tall candelabra, hand lamps—all for the embellishment of the houses of the rich.

Compared with these bronzes the marbles, just as at Cerigotto, have suffered severely from their long sojourn beneath the sea; only

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too often there survives nothing but a corroded and unrecognizable lump of stone. But disfigured though they are, the marbles have a story to tell. When we examine them we find that they were objects of commerce. The workshops where they were made employed methods of mass-production with due consideration for speed of output and economy. The statues are made up of separate pieces, quite small in size and easy to handle and transport; they could be manufactured simultaneously by workmen graded according to their skill. Little care was taken to see whether the raw lump was of adequate size or how the pieces joined together. The top or back of a head was often formed of a piece attached to it separately and secured by a large leaden rivet. The line of junction often passes across a shoulder and even through the middle of the cheek. We also have several heads destined for statues of more than life-size—Niobe, Niobids, Satyrs male and female, and youths. The best preserved, which has a calm and somewhat dreamy expression, is an Aphrodite; the head is attached to part of the bust, but there was no right shoulder!

Enormous craters, broken into countless fragments, four of which however have been mended, give us further valuable information about the methods of the sculptors. Our four bowls, surrounded by bacchic scenes of Satyrs and dancing Maenads, consist of two similar pairs. On one of the pairs we have figures of the same character, and placed in the same order, as on the Borghese vase, found at Rome in the 16th century and now in the Louvre. The other two had exactly the same subject as a vase from the Campo Santo at Pisa. The artists responsible for them copied assiduously to supply a present demand, and sacrificed all originality in their efforts to produce easily what they knew their patrons would welcome.

Several candelabra in the neo-Attic style, of a fine ornamental character, have, on a triangular base supported by the foreparts of griffins, several rows of round plates held one above another by bunches of acanthus or baskets of leaves. (Plate III).

One of the most surprising discoveries was that of Greek inscriptions, which appear, from their context, to have been carved for use at Athens, the majority in temples of the Piraeus. This proves that the wrecked ship sailed from Athens, and embarked its cargo at the Piraeus. What we can only infer for the vessel of Cerigotto, we can state as a fact for that of Mahdia.

As regards the date of the shipwreck, there is abundant evidence that it took place at the beginning of the 1st century B.C.; it is only

SUBMARINE DISCOVERIES IN THE MEDITERRANEAN

necessary to mention some. Amongst the mass of jars, plates, dishes and querns on board was a humble terracotta lamp whose flaxen wick survived in a carbonized state, showing that it was in actual use. It belongs to a type manufactured at the end of the 2nd century B.C. The anchors—huge masses of lead two of which, weighing between 1300 and 1500 pounds (600–700 kilograms), have been recovered—are of a type in use during the 1st century B.C.

The vessel having been loaded at Athens and lost during the first quarter of the 1st century, it is pertinent to observe that in 86 B.C. Athens was captured by Sulla, and the Piraeus plundered and burnt. We dare not go so far as to state that Sulla himself ordered the consignment, but it is nevertheless probable that the events of the year 86 caused some of the objects to be torn from their natural surroundings and put upon the market. Some shrewd merchant had collected them, added a number of newly-made statues, ornamental pieces, furniture and objets-de-luxe turned out by the workshops. He shipped the whole consignment overseas, most probably to Italy, to meet the growing demand of a clientèle for whose benefit the monuments of Greece were pillaged and her masterpieces reproduced more or less faithfully by the processes of industry. For in the 1st century B.C. Athens still retained her prestige as the home of art. A number of sculptors worked in succession there, copying always the same models and adopting methods which were expeditious though not lacking in skill. They derived their inspiration from the works of a noble past which they justly reflected. The wrecks of Mahdia and Cerigotto prove that the authors of these copies had not, as had previously been imagined, emigrated to Italy, but that they remained in Greece and above all in Athens, whence right down to the last century of the Roman Republic were exported to the peninsula thousands of shiploads, such as ours, of statues, columns, sumptuous furniture and choice trinkets.

MARATHON

These two important discoveries raised the hopes of the statue-fishers, whose expectations of more good fortune were not disappointed. About the middle of June 1925 the crew of a fishing-smack in the bay of Marathon hauled up in its nets an almost perfect bronze statue 4 feet 3 inches (1 metre 30) high, now in the Athens Museum. It represents a boy holding his right hand above his head, and with his left hand held slightly forward. In his left palm was placed some fairly bulky object which has disappeared. The true interpretation remains conjectural,

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though the most varied opinions have been expressed—that it is Hermes looking at the tortoise which he is about to convert into a lyre ; that it is a boy holding a fighting-cock, or balancing something, or carrying a lamp ; or a victorious athlete gloating over the prize he has just won, or a young fruit-picker, or even a dancing satyr ! It is a work of art both charming and tasteful, and an original of the second half of the 4th century B.C. From the poise of the head, and from the general attitude and slightness of the model, it may be attributed to the school of Praxiteles ; whilst the face, the treatment of the hair and the knowledge of anatomy seem to suggest some degree of influence from Lysippus. Although regular 'excavations' have not yet been carried out at the place where the statue was hauled up, it is plain that we have here to deal with a shipwreck ; at the same time there were found remains of planks and the foot of a bronze candelabrum. The site is remarkably promising.

ARTEMISION (EUBOEA)

A little later, in September 1928, Zeus the Thunderer emerged from the sea.

Two years before the National Museum of Athens had acquired a bronze arm obtained from the channel north of Euboea, opposite the ancient site of Histiaea. The discovery aroused the cupidity of dealers, who formed a conspiracy to remove secretly the image whose existence was betrayed by this arm ; they were on the point of succeeding in their bold venture when the Greek Government intervened just in time ! The prize was a fine one. The statue is 6 feet 8 inches (2m. 09) high and almost complete, for the two broken arms fit perfectly to the body ; apart from the filling of the eye-sockets, there is missing only the object which he was brandishing in his right hand, doubtless the thunderbolt which the god, standing firmly with legs astride, is about to hurl with a vigorous and lordly mien upon the target to which his other hand is pointing. (Plate IV). Others hold that it is a Poseidon brandishing his trident. This original, cast for a temple, is most remarkable on account not only of its beauty but also for its date, for it goes back to about 460 B.C. The arrangement of the hair, with its encircling plait, occurs on the Fair-haired Boy of the Acropolis, and on the 'Apollo with the Omphalos'. This archaic feature is to be observed also on the Laborde head from one of the pediments of the Parthenon recently acquired by the Louvre ; here it is associated with an expressive naturalism already close to that of Pheidias and shown

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both in the rendering of the beard and the body. A piquant feature was finding round the waist of Zeus the rope with which he had been fastened to the ship.

In the same spot, 700 metres from the shore and at a depth of 48 metres, there was found in the autumn of 1928 the forepart of a galloping life-size horse with out-stretched neck and short mane. It belongs to the middle of the 5th century B.C. There was also found the figure of a young horseman with curly hair, like that of a negro, and with limbs stretched taut as if he were controlling his mount; at first sight it seemed too small and too late in date to belong to the galloping horse, but it probably formed part of the same group.

The 'excavations' resumed in May and June 1929 yielded fresh portions of the horse and rider, as well as terracotta amphorae used by the crew, the ship's lamp, pieces of the hull of the ship with bronze and iron nails and leaden casings, a leaden anchor, and heavy boulders which had been used as ballast. If there were actually present amongst the pottery vessels some of Arretine ware, as has been stated, the wreck would date either from the last decades before the Christian era, or from the first part of the 1st century A.D., and we should come back yet once again to the period of the wrecks of Cerigotto and Mahdia.

After so many almost miraculous finds, what have the shores of the Mediterranean in store for us, strewn as they are with bronzes and marbles which have been overwhelmed by the waves? Chance discoveries followed up by systematic research will be able, more surely than any other method, to recover in all their radiant brightness a few of those ancient masterpieces 'whose great inexpressible loss was mourned by subject Greece'. The rapacity of the Romans, greedy for the artistic treasures of Greece, and the fury of the elements which abstracted some portions of their booty, will have had at least this advantage;—they have already enabled us and will in the future again enable us, to re-discover in a remarkable state of preservation wonders which, had they been left in their original homes, would long ago have disappeared for ever. The old 'lord of shipwreck', by sheltering them in his bosom for twenty centuries, has saved them from destruction and kept them safe for our enthusiastic appreciation.

TRANSLATOR'S NOTE

M. Merlin's article reminded us of a letter we received some years ago from Professor J. L. Myres, Wykeham Professor of Ancient History in the University of Oxford. We sent it to him again and received it

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back with several remarks added. We have his authority to print the following note combining the information in the two letters :—

The exploration of submarine antiquities has been much discussed ; but little has been done owing to the great practical difficulties involved. The present facilities for submarine research and for salvage probably make possible much that was out of the question formerly.

The whereabouts of the wreck containing part of Lord Elgin's collection is not precisely known. Wrecks of ancient ships have been only rarely located.

Sites of sea-fights are of course better identified, though not many with precision. Salamis has been 'dragged' a little, but without success, though one would not expect much subsequent silting there. Unfortunately this bay has been used so much as an anchorage for large war-vessels, especially during the War, that much damage may have occurred. Nothing appears to have come from Syracuse ; Actium is probably silted ; Ladé is now about a mile inland, owing to siltage, and the bottom is much too deep for excavation. Besides, war-ships do not carry cargoes of works of art, and the bronze beaks and other fittings would be very unmanageable, even if they were found, in deep water. The great difficulties encountered in the recovery of Caligula's state barges, in shallow water, where it was possible to drain the lake, give some idea of the risk of involuntary damage at greater depths to constructions which must be essentially of timber.

But aerial reconnaissance will greatly increase the efficiency of submarine exploration. I have never myself seen a wreck in deep water; but where the bottom is white sand, I have seen rocks and large tufts of seaweed easily from on deck in 6 or 8 fathoms, and I remember a sudden reversing of engines and 'hard-a-port-ing' of helm in 22 fathoms over a patch of 'white ground' off Kos on a bright day. From the air, in calm Mediterranean water, the general contours of the bottom can be made out a considerable distance from shore ; but as I had no chart with me when I was up, I cannot give absolute depths.

At Navarino (I am told) the Turkish fleet is clearly visible, and also the wreckage of an earlier sea-fight between galleys, probably Turkish and Venetian. But I know of no ancient site where there is actual evidence of wreckage.

British Excavations at Constantinople

by D. TALBOT RICE

THE study of the archaeology of eastern Christendom is as yet still in its infancy and the students of east Christian and Byzantine art have been few and far between in England. But of recent years there has arisen a new and more general interest in the civilization which was so violently condemned by Gibbon, and work both of a theoretical and of a practical character has been undertaken on a wider scale. With the theoretical or purely scholastic aspect we are not here concerned; but it seems of interest to present a brief survey of the actual work which has been undertaken by British investigators at Constantinople, the very centre of the Byzantine civilization.

During the last four years excavation on a larger or smaller scale has been in progress, and six separate sites have been examined more or less elaborately as funds have permitted. In 1927 and 1928 a large Expedition, supported by the British Academy, was in the field. In 1929 and 1930 funds were raised in England for work of a more modest nature, but the results were none the less interesting and in one instance discoveries were made which can well be classed within the realms of the sensational.

In 1927 the British Academy Expedition, led by Mr Stanley Casson of New College, Oxford, undertook the investigation of the Hippodrome, a structure of far greater importance at Constantinople than in other cities of Roman origin, for it served the purposes of stadium, theatre, parliament and general meeting place alike. Built by Septimius Severus in pre-Byzantine times, the Hippodrome has undergone numerous changes and modifications, and today the ancient site is so built over that it was only in one small area on the western side that we were able to examine the outer walls. But our investigations served to establish the exact dimensions as to width and system of construction, and accurate plans were made of the sphendone or southern extremity, the substructures of which still survive above ground. More interesting were excavations along the central line of the race course, the position of which was easily to be traced because of the three ancient monuments which survive today:—the built column of Porphyrogenitus, the bronze serpent imported from Delphi by Constantine,

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and the column of Theodosius, an Egyptian obelisk of Thothmes III, placed upon an elaborately decorated base of early Byzantine work. (Plate I). We found that there was no actual 'spina' separating the up and down sides of the course, as is usually the case in such monuments. Rather there existed a series of monuments, each standing separately from the other. In ancient times there were many more than we see today, and some of those that have disappeared must have been of the first importance. But little trace of them remains and we have to rely on the diverse accounts of travellers and historians if we wish to gather any idea of their character.¹

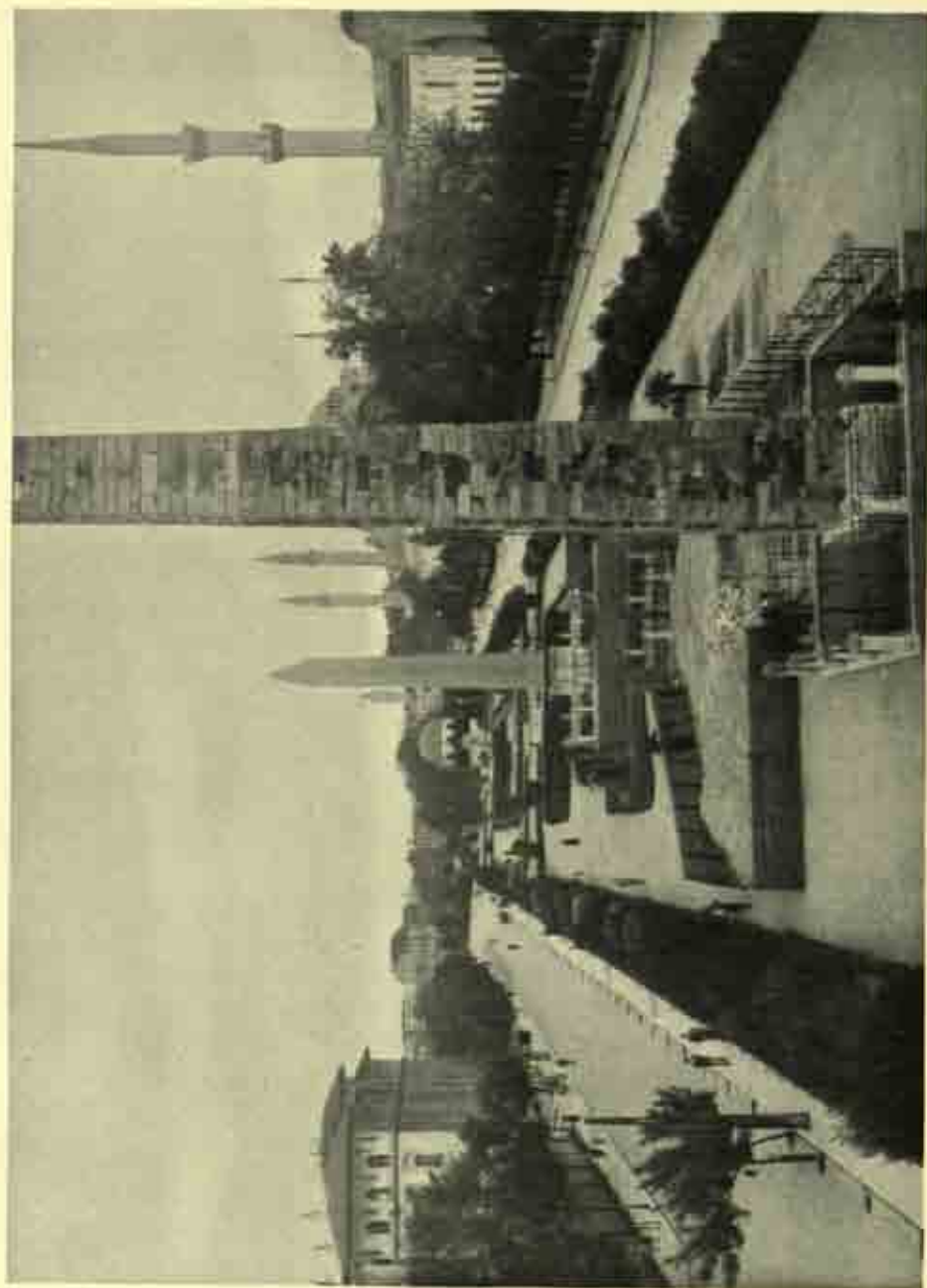
In addition to the work at the Hippodrome, excavations were carried out in collaboration with the Ottoman Museum, but under Mr Casson's direction, at the Golden Gate, the great triumphal entrance to the city which has remained closed for thoroughfare ever since Byzantine days. The passage was blocked and the magnificent appearance of the gate was greatly marred by a vast accumulation of debris, the greater part of which was removed by us. (Plate II). The excavations were also extended to the small outer gate, which was once adorned by a fine series of bas-reliefs. Sir Thomas Roe, British Ambassador, or rather representative of the Levant Company at Constantinople in the early eighteenth century, had attempted to buy the reliefs, without success. It would have been better for the cause of art had he succeeded, for extensive excavation disclosed the fact that a few fragments only have survived the hand of time and the few fragments are badly broken. The fine work that they exhibit serves to whet an appetite which can now never be appeased.²

The second season of the Academy Excavations, directed by Mr Casson from Oxford and by the author on the spot, was generously supported by Sir Joseph Duveen. We were principally concerned in laying bare a structure adjoining the northeast corner of the Hippodrome, which was known in Byzantine times as the 'Baths of Zeuxippos'. The building was destroyed to a great extent in the Nika riots of A.D. 532, but its former importance is attested by more than one historian. Our prospects were of the brightest, for not only did the final determination

¹ The results of work in the Hippodrome and neighbourhood were published in 1928, under the title 'Preliminary Report upon the Excavations carried out in the Hippodrome of Constantinople in 1927'. *Oxford University Press*.

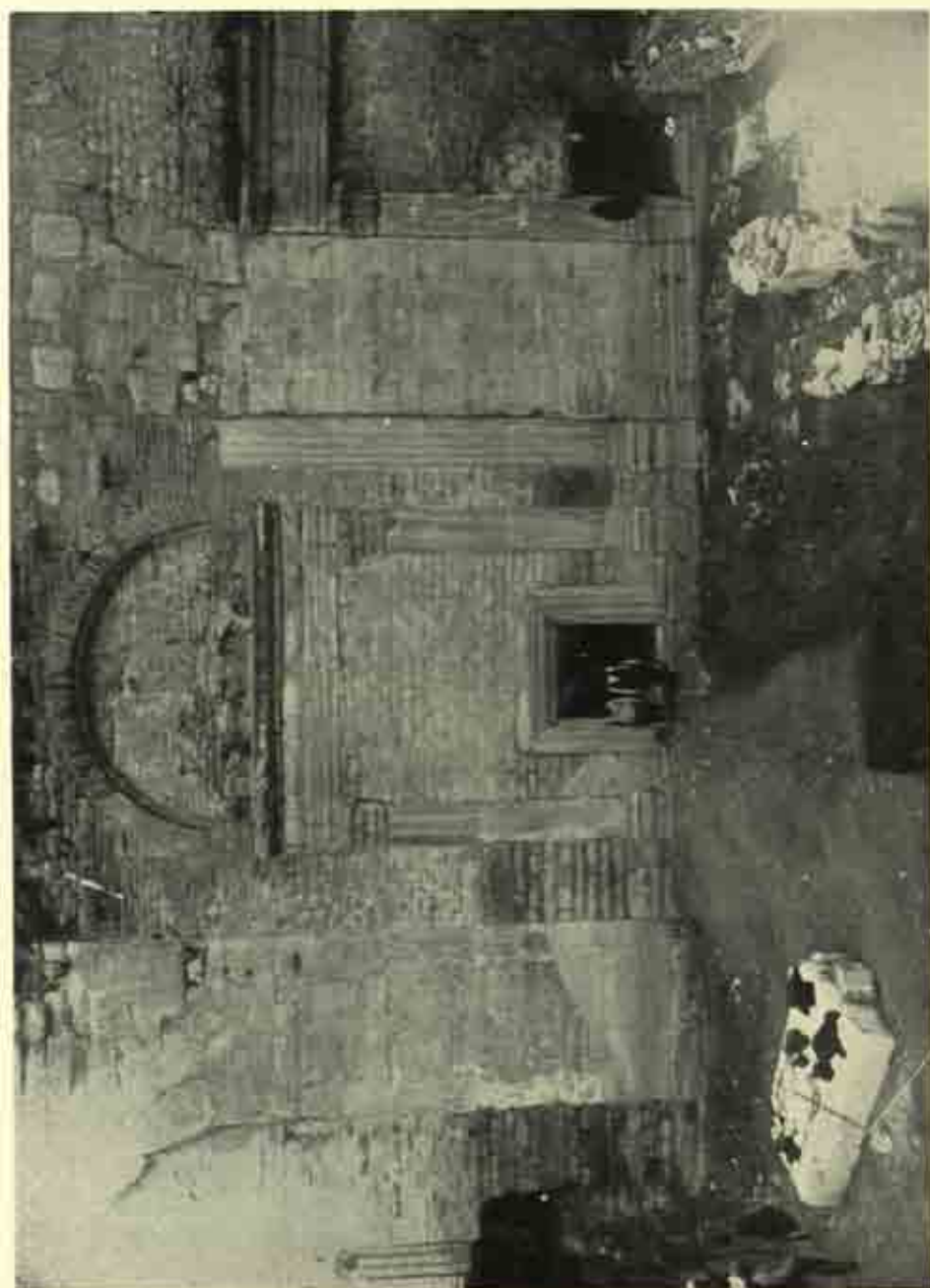
² The results of work at the Golden Gate will be published by Mr Casson in the near future.

PLATE I



THE HIPPODROME, CONSTANTINOPLE, LOOKING NORTH

PLATE II



THE GOLDEN GATE, CONSTANTINOPLE, AFTER EXCAVATION

PLATE III



PROBABLE SITE OF THE BATHS OF ZEUXIPPUS, CONSTANTINOPLE

PLATE IV



ARCH OF THEODOSIUS, CONSTANTINOPLE: PODIA AND RUINS

PLATE V



ST. MARY PANACHRANTOS, CONSTANTINOPLE: THE SOUTHERN CHURCH, FROM THE EAST

PLATE VI



THE MYRELAION, CONSTANTINOPLE: THE SOUTH SIDE

BRITISH EXCAVATIONS AT CONSTANTINOPLE

of the site throw considerable light on the vexed question of the topography of the Great Palace, but also there was a hope of sensational finds. Actually the structure was more than a bath; it was in fact a kind of museum, in which were preserved the finest of statues imported from Greece and Rome when Constantinople assumed the rôle of the world's greatest city. Our researches proved that fate had dealt hardly with the statues; a few fragments only had survived. But the bases that had supported them were there, or at any rate some of them, with the names inscribed upon them, and the walls of the once famous baths were in general well preserved. (Plate III). Minor finds, too, were profuse. Most striking was a small but very fine cloisonné enamel; more important in the history of art were numerous fragments of glazed pottery which, when considered together with those of the previous year, enabled us to undertake a detailed classification of the material. They showed that the ceramic art of Byzantium was one which can be considered on equal terms with those of Persia, Egypt or Italy.²

At the same time a secondary excavation was undertaken in collaboration with the Ottoman Museum and under the direction of Macridy Bey, curator of the Museum, in a Turkish building called Sirmakesh Han, close to the mosque of Bayazid. Preliminary work had disclosed architectural remains of vast proportions and these were uncovered as far as the standing buildings of the Han would permit. Two podia of a large triumphal arch were discovered, and around them were strewn fragments of the arch that had topped them. (Plate IV). Historical data showed us that we had to deal with the once famous triumphal arch of Theodosius the Great, marking the site of the forum Tauri, through which passed the 'mese' or great central street of the city. The unusual decoration of the columns of this arch is of considerable interest in the history of ornament; the actual construction is important for the study of early Byzantine architecture; the remains identify the site of a long forgotten structure and finally the determination of the monument shows us the line which was followed by the mese between the Golden Gate and Saint Sophia. Interesting in this last respect were two large tunnels of brick, each some two and a half metres in height, which ran between the podia of the arch, below the surface of the ancient road. These apparently followed the line of the mese, for they were found again by a Danish archaeologist, Mr Wett, during

²The pottery is published and discussed by the author in 'Byzantine Glazed Pottery'. Oxford, 1930.

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recent excavations around the base of the column of Constantine, about halfway between our arch and the church of Saint Sophia.⁴

This marked the close of the British Academy Excavations, but in the following year Mr Casson was able to raise money in England for the investigation of a Byzantine church, Saint Mary Panachrantos, which had been turned into a mosque at the time of the Turkish conquest. It had been ruined by a fire in 1916. The work was carried out in the name of the Ottoman Museum, under the direction of Macridy Bey, and produced finds of the very first importance in the history of Byzantine art. The results will be published in detail in the near future. In the meantime we can offer a view of the church, in which the elaborate work and the fineness of the brick decoration can be distinguished. (Plate v). It shows also the nature of the building, a double church with a third addition on the southern side. Of these the northern church, which originally had five aisles, is the oldest, dating in part from the sixth century. Before the investigations little was to be seen within, but removal of plaster has disclosed remains of a sumptuous decoration. A sculptured cornice marks the tops of the windows and surrounds the base of the dome. The capitals of the piers that support the roof are of the finest, and double columns with capitals attached separate each of the three lights of the numerous windows. The second church, to the south of the former, is of thirteenth century date. It has three aisles, but the northern one is actually the extreme south aisle of the earlier church, which was denuded of its two exterior aisles at the time of the building of the later structure. Here removal of plaster again disclosed fine capitals and cornices, but the work is hardly as fine as that to the north. Both churches were originally elaborately decorated with wall-mosaics, but these were almost all stripped off when the building became a mosque. Finally, to the south again is a long vaulted structure, which was added as a tomb-chamber in the Middle of the Palaeologue period. The architecture is not very ambitious and the tombs were apparently not very rich. But in the debris which covered the floor, both here and to the north, some extremely fine sculptured fragments were found, which belonged not only to the cornices already mentioned, but also to a magnificent arch which bore the heads and busts of the twelve apostles.⁵ With the marble were

⁴ For a description of the work at the arch, as well as in the baths of Zeuxippus, see 'Second report upon excavations carried out at Constantinople'. *Oxford*, 1929.

⁵ The arch has been reconstructed and is now on view in the Ottoman Museum.

BRITISH EXCAVATIONS AT CONSTANTINOPLE

unearthed fragments of ceramic wall revetment; most of them are small, but they are extremely important, for they enable us to date with certainty a distinct type of glaze and pottery. Strewn here and there were portions of marble, white, red or green, incised so as to contain a filling of bone, ivory or 'pâte de verre'. The objects to which the fragments belong can be best classed as icons, though they show a technique hitherto unknown. Certain of them are well enough preserved to permit a restoration of the figures which they bore; on others portions of designatory inscriptions survive, which show that they depicted our Lord, the Virgin or one of the numerous Saints commonly revered by the orthodox church.

A further investigation of the northern church provided even more surprises, for on the roof were discovered four small chapels, one so to speak at each corner of the dome; and close to one of these was found a complete icon of the type just described, which represented Saint Eudoxia. The icon lay with its face to the ground, so that it first appeared as a slab of marble; it must have been laid there by a workman when the church was turned into a mosque, or perhaps at a later restoration in 1631, when the mosque was re-endowed under the name Phenari Issar.

In 1930 work was once more resumed, this time by the author in the district of the Myrelaion. A small church known to the Turks as Budroum Djami survived there and this had always been identified with the well known church of the Myrelaion, which was endowed by the Emperor Romanus Licapenus and in which he was buried, together with various members of his family, in 944. Removal of Moslem plaster showed that the building was never very elaborately decorated and it does not seem as if it can be much earlier than the eleventh century. Historians tell of the richness of the Myrelaion and of the royal tombs it contained, none of which were met with during our investigations. It thus seems that we must seek for the church of the Myrelaion elsewhere. But the Budroum Djami is none the less interesting, for investigations disclosed the fact that it is actually a two-storied church. The ancient ground level is marked by the road in the foreground of plate VI. The accumulation behind the road, which has the appearance of a hill on which the church stands, is actually a filling which hides the lower church. This is a three-aisled construction with roof supported on four columns. At the level of the roof a colonnade or ambulatory about one and a half metres wide, supported on arches, ran around the outside of the building. The vaults can be

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distinguished at the bottom of the walls of the upper church as shown in plate VI. This 'ambulatory' was reached from below apparently at the east end, but no stair has survived. When once reached it was possible to walk all round the building and to enter the upper church by whichever door was desired. The lower edifice, with three aisles, exo-narthex and roof supported on four columns was undoubtedly a church and not a cistern, as some authorities have suggested. Its identity is proved not only by its plan, but also by the absence of a special cement which is invariably found on the walls of cisterns. The vast accumulation of rubbish within, which reached to a level of five metres above the floor, all belongs to the Turkish period.

Our investigations were extended beyond the confines of the small church in two directions. To the northwest a large cistern, already known, was re-examined with interesting results, for it was found that it was actually a construction of mid-Byzantine date which fills up a space bounded by the massive stone walls of a more important building, dating at the latest from the period of Constantine. To the south we disclosed a large circular building with four small angular niches in the northeast and corresponding corners. Within it were strewn numerous architectural fragments from the walls above, among them two complete and three fragmentary double columns of marble, with finely sculptured capitals. The nature of their decoration and the style of masonry of the walls showed us that we had to deal with a building which must be assigned at latest to the sixth century. The remains of an elaborate floor in opus Alexandrinum show that the edifice was of considerable importance. But its nature or purpose is uncertain and its identification will demand considerable historical research.

One feature of the four years' work stands out with striking clearness, namely the vast amount that remains to be discovered about the topography of Byzantine Constantinople. Of the largest buildings of the city we know something, but of those of secondary or even many of first importance, we know practically nothing and the numbers that lie buried and forgotten appear to be without end. It remains for the archaeologists of the future to disclose such of them as may be important in the study of history and art. Constantinople, the greatest capital of the medieval world, who in her day boasted a power as wide and a civilization as accomplished as that of either Rome or Athens, has until now escaped the spade of the scientific investigator. Such work, which was impossible before the war, is now simple of execution, thanks to a new and enlightened régime.

Recent Discoveries in Persia: a review*

by OSCAR REUTHER
Professor, Dresden University

WE publish in the form of an article a summary of Professor Herzfeld's important researches in Persia. He is describing them in a new journal which he has founded for the purpose, and of which four parts have already appeared. This journal is of course indispensable to all students who wish to keep abreast of the work which he is doing. Archaeologically Persia has long been a closed area and it is still by no means fully opened up to scientific research. Professor Herzfeld is working there practically single-handed but H.I.M. the Shah has taken a personal interest in the progress of his work and has accompanied him on some of his expeditions. Such evidence of official interest will be most gratifying to orientalists, and we look forward to the further results which must follow from such influential recognition.—EDITOR.

Ernst Herzfeld has acted for many years as adviser on antiquarian matters to the Government at Teheran, and is now recognized as one of the chief authorities on ancient Iran. The publication of the results of his investigations is very welcome; a second series is also projected—the 'Iranische Denkmäler'—intended to give a detailed description of the monuments recently examined: architectural, archaeological and epigraphic.

It is twenty-five years since Herzfeld first saw the ruins of Mashad-i-Murghab, the Pasargadae of the ancients. He now presents, in the first part of his new journal, a short preliminary account of the excavations by which he has considerably increased our knowledge of the first royal residence of the Achaemenids. The best-preserved monument in Pasargadae is the tomb of Cyrus, which is familiar chiefly through the photographs of Dieulafoy. Herzfeld realized that the portico, surrounding the terraced substructure on which rises the burial-chamber,

* *Archäologische Mitteilungen aus Iran*: edited by Ernst Herzfeld. Vol. 1, parts 1-3, vol. II, part 1. Berlin, Dietrich Reimer (Ernst Vohsen), 1929 and 1930. Each volume (2 to 4 parts yearly) RM 20. Review translated by Roland G. Austin, of Glasgow University.

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does not belong to the original plan as hitherto assumed, but is a mosque erected in the 13th century with material robbed from ancient Persian sites. Entirely new discoveries have been made by the excavation (in 1928) of the temple-site, which lies in the middle of the extensive ruin-field of the old city. Two stone altars were long known to be there. Excavation has shown that these stand in a large rectangular courtyard enclosed by a wall; on the narrow western arm of this court there rises a terrace-structure in six tiers. It is impossible to determine whether the uppermost platform of this structure was merely an open place of worship or had a special temple-chamber erected on it. But in Herzfeld's opinion, there must be assumed the existence of a chamber with a saddle-roof, more particularly because he regards the tomb of Cyrus as a reproduction in stone of such a tiered temple. In any case this newly-discovered shrine at Pasargadae is the oldest, and so far the only known, temple of ancient Persia. Some remains of the palaces were already familiar, for example the ruins previously termed the 'palace with the relief' and the 'palace with the pillar'. Fresh examination of both buildings proves that the former, with its still standing pillar on which is the relief of the winged genius, earlier identified with Cyrus himself, is the great gateway of the palace grounds. The second had already been recognized as the audience-hall of Cyrus, and, as reconstructed, was thought to correspond to the Apadânas of the later Achaemenids in Persepolis and Susa. Herzfeld's excavations have corroborated the earlier attempts at reconstruction made by Dieulafoy and von Bissing-Schuler in so far as they have shown that at the rear of the palace, corresponding to the entrance-hall between the two corner chambers, a portico running along the whole length of the building opened out between pillar-buttresses (*Anten*). The remains of the capitals are of special interest; as in Persepolis, their chief motif consists of the fore-quarters of two beasts placed back to back. Besides the bulls and unicorns known to us from Persepolis and Susa, lions and horses have been used for their decoration.

Our knowledge of the architecture of the ancient Persians has also been considerably increased by the excavation of another ruin lying in the middle of the palace-group, of which a single pillar still remains upright. This is the dwelling-palace of the king, a rectangle of 76 m. by 42 m. with a hall containing two rows of pillars, probably made of wood, before the frontal of the house; the latter is divided into a series of parallel chambers, and in the middle of it is a nearly square room with six rows of stone pillars. Cyrus therefore did not live in a 'Tatcharam'

RECENT DISCOVERIES IN PERSIA

like Darius in Persepolis, but in a house of a much more primitive type than the palaces of the later Achaemenids. Parts of the door-relief and remains of the painted frescoes which are preserved afford some idea of the artistic decorations. The whole lay-out of the palace-quarter must have been very extensive. The individual buildings, to which small pavilion-shaped structures were attached, obviously stood in a large garden. A reservoir and pipes for the water-supply have also been discovered. The whole was enclosed by an approximately rectangular wall, and it was defended by a fort on a mound immediately to the northeast. The importance of the excavations, which it is very desirable should continue, lies chiefly in the new light they throw on the earlier stages of ancient Persian art. This is shown to have developed from its own beginnings, and the assertion so often made, that the buildings of Persepolis can only have arisen under the influence of Ionian Greeks, must be rejected as erroneous. The account is illustrated by some photographs of the excavations of the palace, two sketches of the temple, and an excellent map of the ruin-field and its surroundings, the work of Herzfeld's collaborator Fritz Krefter.

Herzfeld also gives much new information concerning Persepolis in a report on the condition of the ruins, written in French and Persian for the Persian authorities, with an appendix containing suggestions for their preservation. All earlier investigators had failed to observe that the palaces to the south of the terrace formed a lay-out with several court-yards, cut off by walls from the audience-halls of Xerxes and Darius; in their midst, in front of the palace of Xerxes, known from inscriptions as 'Hadish', stands a high rectangular platform, possibly a place of worship. Particularly important is the fact that at Persepolis too we now have knowledge of the remains of the city which surrounded the palace-terrace to the south, west and east, besides parts of the city walls and the ruins of a building with the relief of a Fradadara, which points to the existence of a temple. The maps, drawn by Krefter, illustrate the topography of the city and the individual ruins. Further details could no doubt be obtained from good air-photographs, taken at a suitable season of the year.

In the second part of his journal Herzfeld reports on archaeological discoveries in Southern Kurdistan and Luristan. In Tepe Giyan and Iznahri, the prehistoric mounds of ruins near Nihawend, many pots were found by peasants, painted in monochrome and of various shapes, closely akin to the pottery of Susa II. Besides these, fine bronze weapons, daggers, lance-heads, arrow-heads, and some very remarkable

axes were discovered, very elegantly shaped and showing a high technique of casting, ornamented with animal heads and other decorations. They bear a partial resemblance to some of Woolley's finds at Ur, as do also the copper girdle-clasps and diadems and earrings of gold and silver; while other articles correspond to those which are known from European sites, the so-called *Noppenringe* and double spirals. The majority of the seals are signets of the early type found in Asia Minor, while cylindrical seals are rare. The finds from the mound Iznahri, as well as the contents of a megalithic tomb at Silweran near Khurramabad, belong to a culture dating to the beginning of the third millennium. To the south of the ruins of Susa, the rock-reliefs of Malamir bring us to quite another period. They are derived partly from the early Elamite, partly from the Arsacid era, and these latter are important for our knowledge of Sassanid rock-sculpture. Herzfeld gives a representation of such a 'sub-Arsacid' relief, which the British consul in Ahwaz, Mr Monypenny, has recently discovered at Shimba in the Bahktiari country. To the same period, the first century A.D., may be dated the remarkable shrine Masjid-i-Sulaiman, investigated by Herzfeld; this lies in the middle of the oilfields, forming a great terrace of 120 m. by 150 m., on which are the remains of a square-shaped building, probably a fire-temple.

In the remainder of part I (2) and in parts I (3) and II (1) of the new journal is a searching investigation into a subject belonging rather to the domain of history and in particular the history of religion, but all the same of great interest to anyone who is concerned with the archaeology of ancient Iran. This is the much-debated question as to where and when the prophet Zarathustra lived and taught. Herzfeld approaches the problem with a critical survey of the historical and geographical material contained in the sources, the ancient Persian cuneiform inscriptions, the accounts of the Greeks—in particular those of Herodotus and Ctesias—and the Avesta literature. Even though the linguistic deductions of the writer can only be followed by the specialist, yet no-one can deny the sound logic of Herzfeld's conclusions. Briefly summarized, the theory is that Zarathustra sprang from the noble Median family of Spitama and was a contemporary of Hystaspes, who, as head of the younger line of the Achaemenid house, held the satrapy of Parthava together with the district of Zranka (later Sistan), and became a convert to the teaching of the prophet, who had taken refuge with him. His son Spentadata slew the usurper, the Magus Gaumata, and under the name of Darius restored the empire and rule of the Achaemenids, and brought about the triumph of the new creed.



CHEQUER-BOARD FROM UQ

By permission of the Trustees of the British Museum

The Lion and the Unicorn

by CYRIL G. E. BUNT

AN interesting discovery, made during the season's excavations three years since on the historic site of Ur, has moved the writer to carry to a conclusion some researches originally started several years ago. Many able pens have been exercised in dealing with the wider archaeological and historic significance of the discoveries as a whole, but the individual objects have as yet scarcely attracted the notice that they, for the most part, deserve.

It is proposed to speak only of one of these objects here—perhaps the most interesting so far unearthed. This is a species of chequer-board with its squares composed of engraved shell plaques framed with lapis-lazuli (see plate). That such a gaming-board should have been preserved thus through the ages is of interest; but even greater interest attaches to the symbolic or decorative motives displayed upon the squares of the board (fig. 1). It will be observed that among the motives referred to is that of the lion and unicorn in opposition.

There is a wide-spread impression, at least among English speaking races, that the legend of the Lion and the Unicorn is peculiarly British. That it is not so may consequently come as a surprise to many who recall the well-known English nursery rhyme :

The Lion and the Unicorn were fighting for the crown,
The Lion beat the Unicorn all round about the town.

These lines have been thought to refer to the heraldic supporters of the royal shield of Great Britain and the Union of England with Scotland under James in 1603 (fig. 2). But the point has rightly been questioned, notably by one writer in *Notes and Queries*¹ who refers, in support of his contention, to two large tapestries in the collection of Prince Borromeo. These tapestries, which are at that Prince's celebrated palace of Isola Bella, Lago Maggiore, he states are 'apparently of sixteenth century or earlier'. One of them represents a lion and an unicorn in combat, with a crown between them. The other depicts the

¹ Series 10, x, 294.

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unicorn being pursued by the lion around a quaint representation of a medieval walled-town, which occupies the centre of the tapestry.

There seems but little doubt that these two tapestries illustrate the old rhyme referred to and are therefore of great interest. There is small chance perhaps of assigning a definite, dogmatic date to tapestries of this period without close examination, but if indeed they are of the sixteenth century they show that the story of the rhyme is a survival of an almost forgotten folk-tradition. The two episodes are so circumstantial—identical in fact—that they must be connected. Even if the tapestries are of later date it is unlikely that they should have been designed to illustrate a popular jingle about the arms of England. We may conclude, therefore, that the story is one of more ancient origin and wider application.

That the legendary association of the lion and the unicorn was a familiar thing in the days of Shakespeare is shown by the words of *Timon of Athens* :—‘ wert thou the Unicorn pride and wrath would confound thee, and make thine own self the conquest of thy fury ’. The reference is of course to the legend as met with in the old bestiaries, such as Gessner’s *Historiae Animalium* (1551-87), Topsell’s *Four-footed Beasts* (1607), and others. In Spenser’s *Faerie Queene* we have it admirably expressed :

Like as the lyon, whose imperial powre
A proud rebellious unicorn defyes,
T’avoide the rash assault and wrathful stowre
Of his fiers foe, him to a tree applies.
And when him running in full course he spyes
He slips aside ; the whiles that furious beast
His precious horne, sought of his enemyes,
Strikes in the stroke, ne thence can be released,
But to the Victor yields a bounteous feast.

It was a time, as we know, when travellers’ tales of fearful and wonderful animals, seen during protracted sojourn in the ‘ mysterious East ’, gained ready credence—a time when the unicorn’s reality was implicitly believed in.

The rich symbolism of the medieval Church embraced the unicorn now as the type of Christ, now as an emblem of purity. But the lion and unicorn together seem to have remained for ages almost entirely in the less exalted realm of popular folk-lore. That, even so, they were nevertheless sometimes employed in a quasi-religious manner we shall



FIG. 1. Chequer-board found at Ur



FIG. 2. Supporters of the British Royal Shield

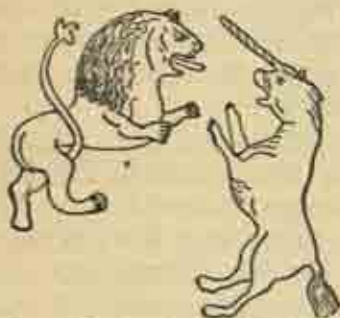


FIG. 3. Device on banner of Ermak



FIG. 4. Panels from ivory thrones of Ivan



FIG. 5. Page from MS. in Bibliothèque Nationale



FIG. 6. Carved relief, Mount Athos

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see later ; indeed a vestment powdered with them is mentioned in an inventory of the time of Henry VIII, in 1530.

In tracing the history of their close association backwards through the past, as we propose doing, it is only natural that we should look towards the East, whence so much of our legendary lore has come. And first we will look to Russia, that strange barbaric land where Eastern and Western cultures seem to have coalesced, producing a civilization neither oriental nor occidental, but simply Russian.

About ten years before Spenser published his *Faerie Queene*, the famous Cossack chief Ermak, hero of a hundred traditions and songs of the Don Cossaki, was engaged by the merchant Strogonovs to further their trade among the Tatars of Tobolsk. This outlawed chief of the wild Cossack tribe, who conquered Siberia in 1581, and then laid the vanquished province at the feet of Ivan the Terrible, carried with him three standards which are still preserved in the Oruzheinaia Palata at Moscow. One of these bore as an emblem a dove, the other two each the device of a lion and unicorn disposed for battle (fig. 3).

Without leaving the galleries of the Oruzheinaia Palata we can discover an earlier example. For here, among the objects in the one-time Imperial Treasures, stands a celebrated throne of carved ivory. It was a wedding gift from Byzantium upon the occasion of the marriage of Ivan III, in 1469, to Zoe, daughter of Thomas Palaeologus the brother of the last emperor of Byzantium. In consequence of this alliance Russia assumed the device of the double-headed eagle, and this device occupies the central panel of the back of the throne. But the flanking panels, easily next in size and importance, are carved, one with a lion, the other an unicorn, among scrolled foliage in relief (fig. 4). Above the lion, perched on a branch, is a dove, the significance of whose presence will be referred to later.

The fact that this throne is of Byzantine origin is important to remember, as contributory to the due appreciation of another example of the lion and unicorn of the same (fifteenth) century. In the Bibliothèque Nationale, Paris, there is a Greek manuscript of the Proverbs of Solomon and other fragments, including pharmaceutical recipes. Incorporated with one of these is a painting representing a tree with fruit and a youth standing between the branches eating of the same (fig. 5). On either side on the high twigs sit two parrots, below them at the side are two storks and near them a lion and an unicorn. At the root of the tree are two mice, one black and one white, who nibble into the trunk. Now in spite of its presence in this fragmentary,

THE LION AND THE UNICORN



FIG. 7. On an ivory carver in Berlin Museum (12th or 13th century)



FIG. 8. Attic fragment, Acropolis Museum, Athens



FIG. 9. Relief, stairway of Palace of Darius



FIG. 10. Engraving on Ostrich Egg, British Museum

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fifteenth century manuscript, this picture depicts an episode in the quaint medieval romance of Barlaam and Josephat, with which, in some way, the lion and unicorn tradition has some connexion.

Briefly, this was a Buddhist story brought from India in the seventh century by a monk of St. Sava Monastery. Its theme includes the story of a youth, pursued by Death, who takes refuge in the Tree of the Pleasures of the World. The mice eating into its root, so that presently it will fall, are day and night—the passage of time.

This Paris manuscript is not the only instance in which this incident is depicted with the lion and unicorn present. It occurs again on one panel of an ancient door of bronze at the Uspenski Monastery of Aleksandrov, Vladimir government, Russia. From an inscription thereon the date of the door is fixed as fourteenth century (1336).

With this example we will leave its association with the interesting old romance referred to and its clearly defined use in Christian symbolism, but may note the occurrence of the lion and bull in combat as a Christian symbol so early as the twelfth century. It occurs as one of a series of carved stone panels in the famous Monastery of Mount Athos, and it is associated with other mythic beasts—gryphons and sirens—and the pine-cone, which are all motives common to Syrian art of pagan times (fig. 6).

Equally Syrian in feeling is the next example to be considered. It occurs upon a beautifully preserved ivory casket of the eleventh or early twelfth century in the Kaiser Friedrich Museum, Berlin (fig. 7). It is significant that this is of Syro-Egyptian workmanship and decorated with animal groups and birds, carved in relief. Among these the lion and unicorn group occurs in a similar attitude to that of the last example, *i.e.* with the lion seizing the unicorn by the flanks. This attitude in point of fact is the one usually manifested in the numerous examples that are met with in the earlier ages.

The motives upon the Berlin casket are familiar in Mycenaean Byzantine-coptic, and Perso-sassanid art. And that the lion and unicorn are there depicted is clear, although the latter animal has a bovine look. He has undoubtedly but one horn, in one figure twisted in the approved unicorn fashion, in another conventionalized in a foliated manner. In one compartment, perched upon the back of the bovine animal, is a bird.

We are here on the threshold of a period when we get ample evidence that, in these days, the lion and unicorn, the lion and bull and even the lion and gazelle were identical. The proof that the symbolism

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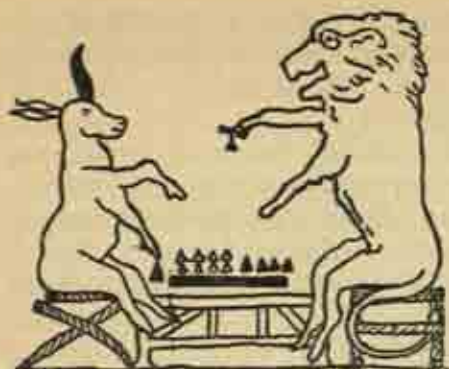


FIG. 11. Drawing from satirical papyrus, British Museum



FIG. 12. From a Chaldean tablet, 6th cent. B.C.



FIG. 13. Incised slab, Merkes quarter, Babylon



FIG. 14. Fragment from Sumner



FIG. 15. The Sun-god, Lagash, between Lion-crowned pillars

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of these variants is identical lies as much in the region of psychology as of logic. For, apart from actual demonstration, one feels that wherever the group occurs the self-same tale is told. After all this is a basic essential of all truly significant symbolism.

Another Egyptian example, a small panel of the same period, on which the two beasts are carved in relief, was exhibited at the Munich Exhibition of Muhammedan Art in 1910. Both these examples are of course of post-Coptic age, but the influence of Alexandria—the city of Euclid—had not died out. Roman art drew therefrom largely also, notably in the arts of painting and mosaic. So it is not inappropriate that our next earlier example should be drawn from Roman Europe.

In 1830 a most interesting discovery of Roman gold and silver work was made at Berthouville, near Bernay (Eure), in France. This treasure (now in the Cabinet des Medailles, Paris), included a fine plate or *discus* of silver. Round the upper rim is displayed, in relief, a spirited series of animals in pairs. Among them are the lion and unicorn confronting each other; and, as the piece is ascribed to the Gallo-Roman epoch (first to third century), it takes us in our enquiry over eight hundred years further back. To about the third century also is ascribed the wall painting of a grave chamber in Palmyra, in the Roman style, on which we see several times repeated a lion pursuing a gazelle. A fine, though fragmentary, representation of the subject again is to be seen on an interesting Attic marble in the Museum at Athens (fig. 8). This is at least a century earlier and may even date from the first century of our era. Its occurrence on certain medals of Sinope and Tarse testify to the spread of the myth among the Greeks of the Satrapies.

Passing to the pre-Christian period we find so many examples that only one here and there can be selected for remark. It becomes increasingly difficult to differentiate between the opponents of the lion, although he himself is invariably unmistakable. The unicorn, the bull, or the gazelle seem to have been selected at pleasure. And here we may mention a very significant point—it is invariably the lion who gains the victory in the fight.

As for the opposing animal, where it is the bull, particularly in Assyrian art, the artist more often than not has represented the animal in perfect profile and, logically enough, shows only one horn. Thus the animal is, to all appearance, an unicorn. It was doubtless the verisimilitude of such representations seen upon the bas-reliefs, etc., that led early travellers to vouch for the actual existence of the unicorn.

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In the Hermitage, Petrograd, there is a celebrated relief of Cybele (Goddess of the earth), along the base of which is a frieze depicting the lion and bull in combat. It is of Greek workmanship of the third century B.C. We will speak of this connexion with the goddess later. In the Hermitage also is to be seen an example of the fourth century B.C. on the wonderful Chertomlyk quiver-sheath of beaten gold, a *chef d'oeuvre* of Graeco-scythian art. But probably the most notable example of this century is to be found at Persepolis, Darius' old capital of the Persian Empire. It forms a striking part of the decoration of the stairway of Artaxerxes Ochus, the approach to the Palace of Darius, constructed 358-340 B.C. On either side is a colossal representation of the lion and bull, or unicorn, for it has the conventional single horn protruding forward (fig. 9). The lion has pounced upon its opponent and has seized it by the flanks, and the group is wonderfully realistic in its essential details. One may say that this is a characteristic attitude of the two beasts at this, the time of its most prolific manifestation. It is found engraved on Babylonian and Assyrian cylinders, on the vases, seals and sculptured stones of the epoch of the Atrides, and is carved on the tomb of Xanthos. In the British Museum is an engraved ostrich egg from a Phoenician tomb, (about VII century B.C.), on which the subject again occurs (fig. 10).

A curiosity which in every way is most remarkable is to be found in the pages of an Egyptian satirical papyrus likewise in the British Museum. It is dated in the period of Rameses III (about 1200 B.C.), and depicts a remarkably well-drawn lion and an undoubted unicorn each sitting on a low stool playing a game with chess-like pieces on a board between them (fig. 11). If this is a satire and not in any sense symbolic at least it certainly shows, not only that the myth of the lion and unicorn was known at that date in Egypt, but that it was sufficiently popular to give the allusion point. It also suggests that the myth had probably some close association with a chess-like game.

An interesting example on a Chaldean cylinder of green marble has a bull evidently pursued through a country of great plants by the lion, who has seized it by the back leg and grips it with the other paw on the flank (fig. 12).

The Assyro-Babylonian period gives us more than one example of the two animals on coins of Croesus. There is one in the Cabinet des Medailles, Paris, showing the heads only, and here again the bull has but one horn. The coin was struck between 560 and 546 B.C. But Babylonia provides us with a very much earlier example—a tablet

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turned up from the earliest stratum on the site of the Merkes quarter of the ancient city of Babylon. Found among cuneiform tablets of the period of Hammurabi (2250 B.C.), it is incised with the figures of the lion and bull in combat, characteristically grouped (fig. 13).

One of the most ancient representations of the antagonism of the two beasts is that on a fragment of shell—a section of a bowl—from Sumer (fig. 14), that ancient, pre-semitic seat of civilization out of which the great Babylonian Empire rose. This small piece has been assigned to the epoch of Ur-Nina, one of the earliest kings of Lagash who reigned somewhere about 3000 years B.C. On it is engraved the familiar scene of the lion seizing the bull (again in this specimen it has only one horn), and, though somewhat rough in execution, it is unmistakably the very subject we have traced back through five thousand years. And now, on the gaming board from Ur, we have a representation that may be as early as 3500 B.C.

The extraordinary persistence of the subject through fifty-five centuries of symbolic art would lead us to surmise that it has its origin in something deeper than mere fancifulness—something far more important to mankind than the mere record of a natural antipathy between two animals, one mythical. Its exceeding antiquity points to the fact that the root idea of which it is the symbol must have been the perception of an event of great importance to man. In a word, it must be looked upon as a religious symbol.

To the Sumerians, Babylonians, Assyrians—indeed to all primitive people—one of the chief events ever recurrent in their lives was the coming of Spring. The sequence of the seasons is personified in their hierarchy and, as a preliminary to the full effulgence of Summer, the Sun-god finally vanquishes the powers of Winter during the season of Spring.

But the ancient nations just enumerated were by no means ignorant. They were, in their day, the civilized world. Among their attainments not the least remarkable was their knowledge of the heavenly bodies. Hence their religion was greatly astrological and their symbols those which are familiar in astronomical nomenclature today.

Now although every one is familiar with Cancer and Capricorn as being the solstitial signs since classical times, it is not so well known that in pre-classic times the solstices occurred in Leo and Aquarius. And it is to these pre-classic times that the earliest vestiges of the myth of the lion and bull (or, with its one horn, one may legitimately say, the unicorn), have been traced. But the most significant fact for us is

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found to be, that, at this period, when the Summer solstice was in Leo (the Lion), the Spring equinox was in Taurus (the Bull). Spring, the bringer of new life to the earth, was inevitably followed by Summer's fierceness. Thus we may say that the lion and bull (generally with one horn be it remembered), symbolize the triumph of Summer over Spring.

But we must remember, too, that it would not merely commemorate the natural fact. It would necessarily assume a religious aspect, for the progression of the seasons under the sway of the solar gods is exalted in the Babylonian as in all primitive religions. And although certain very telling arguments have, with show of reason, been brought against the theory of Astral theology as a complete system, yet it is an admitted fact that the religion of ancient Babylonia was largely composed of solar myths. The Solar-god held premier place and we find the dawn myth depicted on the tablets with the Sun-god, Shamash, issuing from the portals of dawn—a pillar on either hand surmounted by the lion, symbol of the god (fig. 15).

As time went on there was a tendency (as pointed out by King, an excellent authority), for Shamash of Sippara to absorb the lesser solar gods, which led to 'the differentiation of the functions of Shamash during the various seasons of the year and the various times of the day among these minor deities. In this way Ninib, whose chief seat appears to have been at Shirgulla (Lagash), became the sun-god of the springtime and of the morning, bringing joy and new life to the earth, while Nergal of Kutha was regarded as the sun of the Summer solstice and of the noonday heat—the harbinger of suffering and death'.

Does not this, all unexpectedly so far as King is concerned, take us to the very heart of the myth whose iconography we have been considering? I am convinced that it does.

If support were needed we might refer again to the Cybele relief in the Hermitage where the lion and bull frieze has evident bearing upon the veneration of the Great Mother of the Gods and the Sun in Leo and Taurus. In classic times Cybele, with her consort Attis, symbolized the relations between Mother Earth and her fruitfulness. They were worshipped annually at the Vernal equinox. The pine-cone, fruit of the Babylonian Tree of Life, was a symbol of Cybele and it is found among the motives associated with our subject, even so late as the eleventh century, on the ivory casket at Berlin. The pine-cone is also closely associated with the Mithraic cult and we may recall that Mithras was identified with Shamash by the Chaldeans and with Helios by the

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Greeks of Asia Minor. The dove is almost always present in the Mithraic sculptures and also occurs occasionally with the lion and bull. This bird was the ancient sign of the Pleiades and its significance is explained by the fact that at the epoch when Taurus was the equinoctial sign of Spring the sun rose with the Pleiades. How even this detail has survived the ages is seen by the dove on the ivory throne of Ivan III (fifteenth century), and on one of the banners carried by Ermak, together with others bearing the lion and unicorn in the conquest of Siberia (1581).

Another point must be touched upon—the significance of the lion and unicorn in the illustrations of the Barlaam romance. We may recall the presence of the two mice, one white, one black, nibbling at the root of the tree. They symbolized day and night. The lion and unicorn, set likewise on either hand, may doubtless be looked upon as a further pious hint of the passage of time—the progression of the seasons—Spring giving way to Summer, joy and youth inevitably being followed by suffering and death.

The example on the Sumerian shard is now, by the discovery of the broken gaming-board of Ur, perforce relegated to a secondary place in point of antiquity; for, by Mr Woolley's computation, the latter is more ancient by about five hundred years. This of itself is interesting as it takes us back well to the middle of the fourth millennium B.C. But the occurrence of the device of the Lion and Unicorn, as an appropriate motive of decoration for such a board, may perhaps be sufficient to suggest that the game for which it was used was an early species of chess, analogous we may surmise to astronomical chess of later centuries. The twelve squares would support this hypothesis.

That mythological or symbolic figures were not unknown upon chess-boards, even so late as the medieval period, is seen from an example exhibited at the Munich Exhibition of Mohammedan Art, 1910, (vol. IV, no. 3502). But just how definite an import these or similar figures might have in reference to the game it would be difficult to say. In all probability little more may be postulated than an appropriate piece of symbolism for a game which was in essence a combat.

Yet early references to the game in India and Persia show that at least sometimes considerable symbolic value was attached to the game of *Chatrang*. Thus we have the *Chatrang-namak* among the oldest MS. of Pahlawi works (1323), which relates the supposed history of the game. The author, (I quote the version given by Murray in his *History of Chess*), puts into the mouth of Wajūrmītr the words: 'I

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fashion the board of New-Artakhshir in the likeness of the land of Spandarmadh, and I fashion thirty men in the likeness of the thirty days and nights ; I fashion fifteen white in the likeness of day and fifteen black in the likeness of night ; I fashion the movement of each after the likeness of the movement of the constellations, and in the likeness of the revolution of the firmament'.

Among the various modifications derived from Indian chess is the Spanish form *Grande Acedrex*, played on a board of 12×12 squares, and among the names of the pieces we find both the Lion and Unicorn. Also in the circular-chess game of *Los Escaques*, the board has seven rings each divided into twelve parts—each 'house' being allotted to one of the signs of the Zodiac. It is played by seven players with seven pieces, and it therefore may be more than mere coincidence that with the board from Ur there were found seven square pieces, black with five white spots on them, and seven squares of white pearl engraved with animal figures.

In the present state of our knowledge it would of course be going too far to suggest that the game of chess, or even the dice-game *nard*, its forerunner, was played in ancient Sumer. But there would seem little doubt that on the gaming-board of Ur, where the Lion and Unicorn or Lion and Gazelle occur, we have a symbolized allusion to the traditional antagonism of the Sun-god of Spring rising in Taurus, and the Sun-god of Summer which rose in the sign of Leo. And the Sun in Leo is invariably the victor.

Yucatan: New Empire Tribes and Culture Waves

by J. LESLIE MITCHELL

IN the first of these papers* dealing with certain problems in the history and archaeology of Ancient America an account was given of the Maya Old Empire and the possible causes which lead to its collapse in the fourth or sixth centuries A.D. The whole tract of Xibalba was probably deserted, its inhabitants scattered, and the alien theocracy which had inspired a great semi-civilization destroyed.

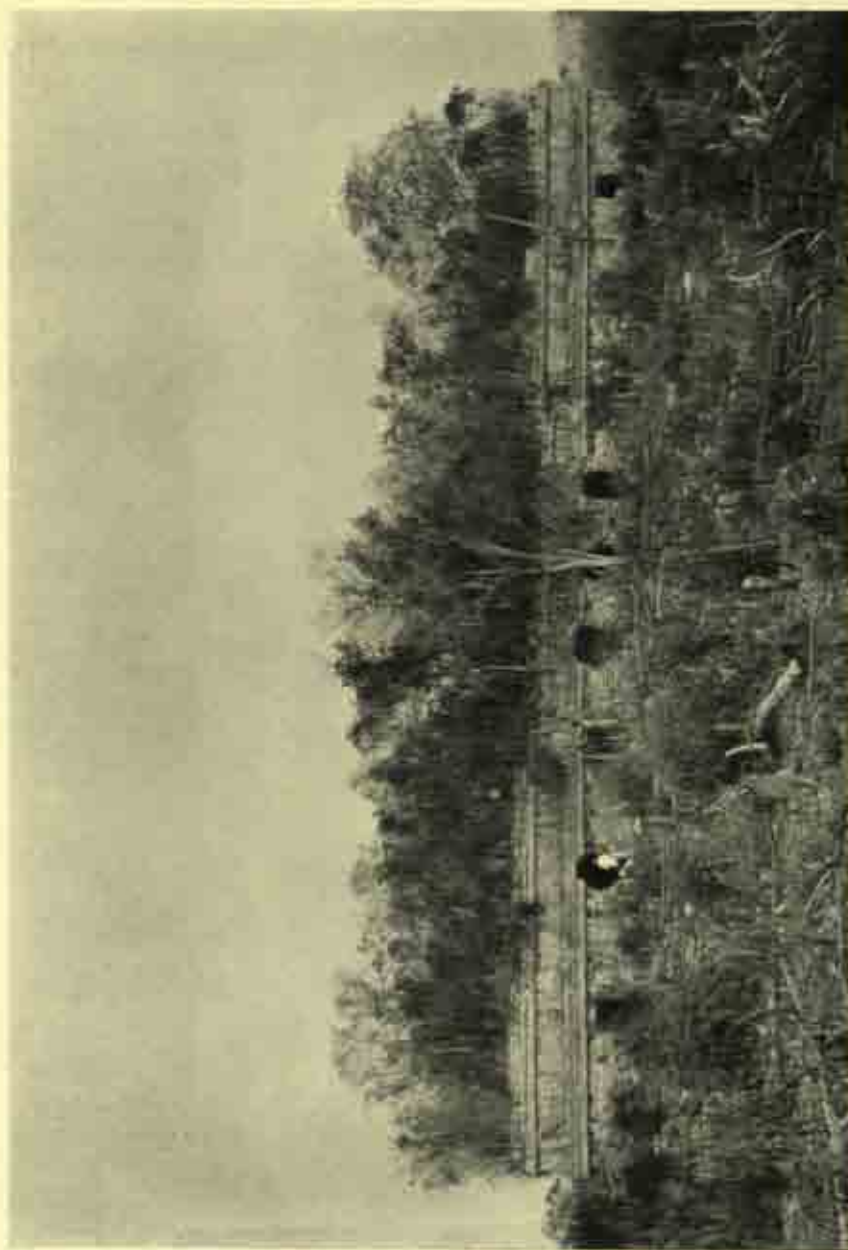
But to the north and south of the Old Empire area there presently ensued a diffusion of Mayoid culture impossible but for the catastrophe or series of catastrophes which depopulated such great sites as Copan, Uaxactun and Palenque, leaving them abandoned for 1500 years to the investigatory prowlings of snakes, pumas, and, culminatingly, of such fauna as that Noah O. Platt whose name J. L. Stephens found carved on the walls of the Palenque palace. 'From archaeological evidence it would appear that Maya culture spread by way of Oaxaca up to the Valley of Mexico. Here, fostered by the Toltec, it took root and flourished with such vigour that, at a still later period, it had a profound influence on the arts and crafts of the Totonac of Vera Cruz'.¹ Southwards, like influences appear to have inspired the Coclé culture of Panama and even spread through the Panama neck into South America, leavening the beginnings of the Andean pre-Inka barbarisms. Meanwhile, the Xibalban city-builders themselves disappeared without further record.

It is again necessary, however, to emphasize the fact that Old Empire history is entirely without record, apart from the innumerable datings on its monuments. The very name Maya was probably unknown in Xibalba. Not only has no contemporary written account of its history and downfall been found and transliterated, but, in

* ANTIQUITY, September 1930.

¹ T. A. Joyce, *British Museum Guide to the Maudslay Collections of Maya Sculptures*.

PLATE I



THE AKAT'CID, CHICHEN ITZA
An example of pure New Empire architecture A.D. 600-900

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subsequent American cultures apparently inspired by it, there is no scrap of tradition that can be definitely identified with the Old Empire. The myths of the barbarous Quiche of the Pacific coast do indeed allude to a nebulous 'Xibalba' which the present writer accepts as a reference to the Old Empire. But such an acceptance is only tentative, and one with which few Americanists agree.

Yet, in spite of lack of reference to an historic Xibalba, the Spaniards who landed in America a thousand years after its collapse discovered on the neighbouring peninsula of Yucatan a race now generally identified as the descendants of the Old Empire population. The identification cannot be regarded as more than partially proved. The thousand years of Yucatecan history is a blur of uncertain traditions, myths, legends—some of which point towards cultural and racial influences radically un-Xibalban. Yucatecan art, architecture, sculpture, script and calendar appear not so much debasements of their Old Empire counterparts (the architecture has improved in technique as it has degenerated in imaginative concept) as half-alien variations on a half-forgotten theme. In consequence of the curtailment of the ancient calendar, Yucatecan buildings lack the profuse datings of the Old Empire sites, with the result that Yucatecan tradition-history is almost entirely dateless but for the record of a single family-group—the Tutul Xiu, whose name suggests an un-Mayan origin and whose apparently meaningless wanderings across the antique Central American scene still induce almost as much confusion among Americanists as they probably did among the Xiux' contemporaries.

The purpose of this paper is to suggest an outline of the Yucatecan cultural phases and the racial and migrational causes from which those phases originated. The multitude of material uncorrelated in any such framework remains productive not only of ludicrous perennial theorizings in the popular press on the subject of 'mysterious' Yucatan, but leads such authorities as Captain Joyce and M. Genet to identify the great figure of Quetzalcohuatl-Kukulcan variously as 'the ripple or catpaw, born of wind and water, the aspect of which suggests feathers, and the motion a snake', and as an actual Toltec general, with biography and pedigree!

Some synthesis is required of the data available to the modern world from the following four sources: *The Books of Chilán Balam*, laconic and frequently contradictory records of the history of the Tutul Xiu family-group already referred to, written in the Zuyua (literary Yucatecan) tongue but in Latin characters; the legends and myths collected

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by the early and mid-occupation Spaniards, especially the clerics Landa, Lizana, Cogolludo, and the historian Herrera; the scanty datings, according to the Old Empire 'long-count' system, found in two, or perhaps three, Yucatecan sites; the architecture and sculpture of the New Empire ruins.

The *Chilan Balam* record opens with the statement that in a 'Katun 8 Ahau' (probably A.D. 163) the Tutul Xiu, under the leadership of Holon Chantepeuh, set out from Nonoual, 'to the west of Zuiva and in the land of Tulapan'.

All three localities have been identified with various portions of the New World. The Abbé Brasseur de Bourbourg² would have Nonoual in Oaxaca, Toltec territory, and sees Holon Chantepeuh's exodus as a drifting raid of aliens into Maya country. MM. Genet and Chelbatz³ substantially agree with their countryman, but place Nonoual in Acallan, west of the Laguna de Terminos. Captain Joyce, on the other hand, finds it 'at present unidentified, but almost certainly somewhere in the Central Maya area'.

The French historians, believing in a Nahua origin for the Tutul Xiu, conclude that 'Tutul' probably meant 'Toltec'. It is certain that long years afterwards the enemies of the Xiu, the Cocomes and other Itzas, were in the habit of dubbing the Xiu 'strangers', in the sense of the Greek 'barbaroi'. Also, the Xiu notabilities themselves seem to have religiously eschewed the 'Tutul' from their personal names, e.g. Nachelxiu.

Now, in A.D. 163, if the Bowditch correlation of the Old Empire and Gregorian calendars is correct, Palenque, the Xibalban Florence, ceased to date its monuments and was presumably deserted, as were possibly other northern sites such as Comalcalco and Ococingo. The eruption of the 'Toltec' Xiu may have had connexion with a great barbarian raid upon those cities—a raid from which the Xiu did not withdraw, for forty years later they settled at 'Chacnouitan', another unknown site, but one, it is safe to conclude, somewhere on the borders of Xibalba and the still uninhabited peninsula of Yucatan. As early as A.D. 200, as is now known from the recent discovery of various small sites, emigrants from the still-flourishing Old Empire cities of northern Chiapas were slowly advancing towards the Rio Hondo and its confluents. 'Chacnouitan', with the Tutul Xiu in the role of 'Mayaized' barbarians, may have been one of those emigrant settlements.

² Notes to *Relation des choses de Yucatan*, 1861. (A translation of Landa's ms.)

³ *Histoire des peuples mayas-quiches*, 1927.

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This synchronization of events is justified if the dates in the various *Chilan Balam* records be treated selectively. For, about 100 years later, c. A.D. 300, the Tutul Xiu are stated to have abandoned Chacnoutan, and by A.D. 300 the Old Empire was crashing to its fall; Copan, Uaxactun, Menché, Quirigua, Ixkun deserted, possibly in a wild confusion of famine and civil war which also affected the Xiu settlement. But of those events the Xius, if implicated in them, left no account. They emerge out of the darkness of over another hundred years with the laconic statement that, c. A.D. 420, they 'discovered (and presumably settled in) Zian Caan'—another name for Bakhala in southern Yucatan.

There, for the moment, they may be left, while consideration is given to the movements of other refugees from the fall of Xibalba. As has been stated before, the Yucatecan Maya, though obviously culturally influenced by the Old Empire, had no definite record of racial relation with it. But it is at least possible that the traditions of the Great and Little Descents were based on facts, and throw some light on the fate of the Xibalban survivors.

No such possibility of myth enshrining history was regarded as warrantable by most of the Americanists of last century, headed by Dr D. G. Brinton. Dr Brinton imposed on nearly every American tradition or legend a 'sun-myth' interpretation which still lingers. But the theory of the inevitable creation of gods or symbolical heroes to fit the facts of natural phenomena is, if not discredited, recognized in American archaeology as only partially explanatory. The deification of culture-heroes must be regarded as at least complementary to their creation.

According to Lizana⁴ the legend of the Great Descent describes the invasion of Yucatan by Itzamna and his following. This invasion came from the west. MM. Genet and Chelbatz, accepting the Great Descent as the migration of actual tribes, assign its origin to the Laguna de Terminos. Though their *Histoire* is in some respects rendered valueless by an unfortunate 'Toltec complex', and an apparent ignorance of the results of the last fifty years of excavation, it is at least possible that refugees from the middle and lower Usamacinta sites of the Old Empire pressed northwards into Yucatan in a great host or hosts through the Laguna de Terminos region. Civilizing the country and settling Champoton en route, Itzamna (an idol borne in a litter at the

⁴ B. de Lizana, *Historia de Yucatan*, 1633.

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head of the invading tribes or an actual leader bearing the name of his god) passed northwards through the barren limestone wastes of modern Campeche, and built at a suitable spot the city of Chichen Itza—the Wells of the Itza.

No dates are, of course, given for this migration. But Chichen Itza, Tulum on the eastern coast of Yucatan, and (a doubtful case) the small site of Xcalumkin are the three New Empire localities which possess buildings inscribed with dates according to the Old Empire calendar. The Chichen Itza date is approximately A.D. 350, the Tulum one approximately A.D. 300.

Either, therefore, the Great Descent was in the nature of a rapid march of refugees from the scene of the Old Empire collapse, reaching northern Yucatan several years before the final abandonment of Xibalba, or—the generally accepted belief—Tulum and Chichen were cleruchies of some Old Empire city, colonized by sea before its fall. Itzamna and his tribes of Maya Itza may not have arrived on the scene until at least A.D. 400, and either captured these cities or re-peopled them.

It was a desolate enough country into which the Great Descent had come from the riverine cities of Xibalba. There is little or no surface-flow of water in Yucatan, but cenotes, great natural wells, appear in the limestone. Round these, or, where they did not exist, excavating the artificial chultunes, the Itza commenced to rear the single-storied temples and palaces of the Old Empire. What proportion of the invaders was composed of artists and craftsmen who had escaped the Xibalban *débâcle* it is impossible to tell, but the spiritual impulses behind the art manifestations of the ancient culture were certainly more than half-forgotten. Carving of the distinctive statue-stelae of the Old Empire soon ceased. Of Sayil, probably one of the early cities built—in company with Itzamal and Zama—by the Maya of the Great Descent, Dr Spinden says* 'the sculpture is very flat and crude, but the free and easy postures indicate that the crudity comes from decadence rather than inexperience'. The 'katun count', a crippled version of the complicated ancient calendar, and signifying an almost complete loss of mathematical attainments, came into vogue. Nothing is certain of the personnel of the migration, but there were probably few pure-blooded survivors of the distinctive class or race which, there is good reason to believe, had ruled Xibalba as a gigantic

* *Maya Art*, 1913.

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theocracy. The warrior cacique, the halach uinic or 'real man', had appeared in Maya history, owning feudal allegiance to Chichen or some such centre, ruling his town or village in which a degraded class of masons and artisans still built and decorated, priests—heirs probably in little more than name to the artists and astronomers of the Old Empire—sacrificed and prophesied. The mass of the population, probably serf-agriculturists, cultivated the milpas or maize-plantations round each centre, forgot Xibalba, and already regarded the leader of the Great Descent, buried in the Mausoleum of the Itzamatul at Itzamal, as divine.

This is a possible picture of northern Yucatan in the sixth century A.D. Both architectural and sculptural evidences are uncertain, owing to the overlaying of later centuries, but careful research, especially in the centre of the region of modern Campeche, may reveal indubitable examples of the building and art motif of this period.

But this settlement appears to have accounted for only one portion of the Old Empire refugees. From the east, according to Lizana, a new leader with a group of followers descended on northern Yucatan. Such descent (unless, which is extremely unlikely, it was a raid of Caribs across the sea) could have come only from the southeast, from the region of Bakhalal, where the Tutul Xiu had settled.

The Books of Chilán Balam appear to confirm the separate tradition. They record that, c. A.D. 500, the Xiu 'discovered' Chichen Itza and 'were accepted as lords of the land'. This, there can be little doubt, was the Little Descent, probably made by the Xiu at the head of a host descended from the inhabitants of the northern Chiapas and Honduras cities of the Old Empire. Possibly Chichen was forcibly captured and the surrounding country laid under tribute. There is no record of this but it is stated that the Tutul Xiu, no doubt in a politic endeavour to conciliate the surrounding Itza Mayas, 'called themselves Itzas'.

Whatever cultural influences the Little Descent brought are now unidentifiable, but the Tutul Xiu appear to have remained obstinately alien in Itza eyes. About 120 years after its capture Chichen, according to one version of the Tutul Xiu chronicles, was 'abandoned', according to another 'destroyed'. The Xiu were, in fact, probably driven from the capital by an uprising of the subject Itza populace and set to wander Yucatan for another eighty years until, c. A.D. 700, Champoton was 'seized' by them.

If brevity be the soul of wit, the *Books of Chilán Balam* are among the most mirthful records in existence. At this point their

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brevity introduces a new complication, and one that appears to have entirely mislead such modern Americanists as Dr Gann⁶ and Mr J. Eric Thompson.⁷ The Xiu who came with the Little Descent to the conquest of Chichen thereafter 'called themselves Itzas', and it is as 'Itzas' that they are thereafter referred to by their chronicles. Accordingly, the abandonment of Chichen, c. A.D. 620, has been taken as a desertion of the land by the Itza populace, another example of the mysterious 'desertion complex'. As careful study of the records show, there is no warrant for this belief. So far from deserting Chichen, the Itzas probably re-occupied it again, while the Tutul Xiu, the 'barbaroi' who had remained unamalgamated in spite of their desire for naturalization, were evicted.

For nearly 250 years after recording the seizure of Champoton, the Xiu chronicles maintain a complete silence. It is two and a half centuries of complete darkness in the history of the Yucatecan Maya, and it is indeed improbable that even the most intensive archaeological research and excavation will succeed in illuminating it. As has been said, New Empire buildings are mostly undated, and in consequence any judgement of the art of this period is rendered almost impossible. Probably it neither remained static nor (so far as architecture was concerned) declined, as has been supposed. Profiting by ages of experience, living in years otherwise a cultural coma, and without distracting considerations of elaborate mural decoration or group rhythm, the Maya mason succeeded in gradually widening, heightening, and altogether 'fining' his buildings. Pottery-making and textile-making probably remained at the general level of Xibalba. Priests coned the ancient scripts and copied them. Serfs tilled the great plantations. City batabs or governors, the 'real men' of the country, hunted and possibly indulged in occasional civil war though the settlements were grouped in a loose hegemony under the leadership of Chichen.

The ruling Chichen family of this period MM. Genet and Chelbatz identify with the Cocomes, later the rulers of Mayapan and the principal enemies of the Tutul Xiu. These Cocomes the French historians not only place at the head of the Itza insurrectionists who had evicted the Xiu from Chichen, but trace their pedigree from the kings of an ancient Laguna de Terminos 'city'! It is hardly necessary to say that there is

⁶ *In an Unknown Land*, 1924.

⁷ *The Civilization of the Mayas*, 1927.

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little or no basis for such pedigree-hunting, or that any account of New Empire existence from the time of the eviction of the Xiu until the middle of the tenth century is by nature almost purely speculative.

Then the Xius appear for a moment in the light again. Champoton (c. A.D. 950) is abandoned. The Xius are driven out, and, breaking into almost voluble record, the *Books of Chilán Balam* tell how the 'Itzas' (i.e. Xius) wandered the forests, homeless, living upon leaves and roots. Some catastrophe had smitten the western sea-board of Yucatan.

Its nature MM. Genet and Chelbatz connect with a great Toltec invasion of the peninsula under the leadership of the Mexican hero, Topiltzin Axcitl Quetzalcohuatl, whom the Maya were to remember as either the god Kukulcan or the bringer of his worship. In the acceptance of this Quetzalcohuatl as an historical personage, MM. Genet and Chelbatz follow Landa, who is responsible for recording the Yucatecan tradition. Mr Thompson also believes Kukulcan may have been the leader of a culture-invasion. To Dr Brinton and the orthodox Americanists generally Quetzalcohuatl-Kukulcan, like the Toltecs themselves, remained a 'euhemerized sun-myth'.* Captain Joyce believes the 'bird-snake' of the Old Empire sculptures to have been a symbol of Kukulcan, and, accepting him as a personification of natural forces, considers him an Old Empire god.

Consideration of events in the Mexican Valley at this time may provide some means of escape for this confusion of gods and heroes. By the middle of the tenth century at least it appears probable that the power of the Toltecs, the great Xibalban-inspired 'Builders' who possibly originated in the Mississippi valley, had been definitely broken by an incursion of barbaric tribes into Mexico. Tula or Tollan, the legendary Toltec capital, was overthrown and its last king, Huemac, murdered.

Side by side with this tradition of the Mexican Valley there survived a curiously complementary one telling how, at the time of the fall of Tollan, the great culture-bringer Quetzalcohuatl, in flight before the barbarians, journeyed down to the sea and took ship into the east—to return, in the Aztec imagination six hundred years later, as Cortes.

This Quetzalcohuatl MM. Genet and Chelbatz, as has been said, consider an historical personage—an opinion with which the present writer is tentatively in agreement—and make him, not a gentle reformer,

* *The Maya Chronicles*, 1886.

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but the leader of the defeated Toltec army meditating a settlement in Maya country. But, considering the subsequent influence of the Kukulcan worship which it seems likely he carried into Yucatan, the matter requires some further elucidation.

In spite of there seeming to be little warrant for the contention of the 'diffusionists' that the first American semi-civilization owed its inspiration to Asia, it is probable that, in the centuries following the fall of Xibalba, Chinese or Cambodian cultural influences played with considerable strength on the Mexican Pacific coast and the art and ethic of the Toltec tribes. This is, of course, denied by most authorities, though Mr Thompson hints at it as a possibility in his paper on 'Central America and the Children of the Sun'.¹⁰ The figure of Quetzalcohuatl suggests as many affinities to that of the Buddha as do the atlantean sculptures of the Toltec palaces to those of the Cambodian, and it is possible that the coming of his legend to Central America considerably antedated the adventurings of the Toltec hero who may later have borne his name. In spite of the usual sanguinary rites associated with his worship he seems to stand as a definitely alien god in the Central American pantheons.

The Kukulcan of Landa, therefore ('Kukulcan' is a literal translation into Maya of the Nahuatl word 'Quetzalcohuatl') may have been both a hero with the name of a god and, in the spirit of the early Mohammedans, a missionary of that god. MM. Genet and Chelbatz, following Las Casas in this particular, land him after his sea-voyage across a neck of the Gulf of Mexico at Xicalanco—certainly the region towards which Toltec refugee tribes appear to have congregated in those years. Thereafter their acceptance of the literal truth of the legends collected by Las Casas and Nunez de la Vega, flatly refuted as those legends are by the evidence obtained from modern archaeological spade-work in the Usamacinta region, can be no longer followed. For they lead the Toltec general Quetzalcohuatl to the conquest of the cities of the Usamacinta basin and the founding of Palenque—Palenque, which, according to any modern interpretation of Old Empire chronology, had been abandoned some five hundred years, and more probably some eight hundred!

Assuming Landa's Quetzalcohuatl-Kukulcan to have had the human character credited to him, however, and associating him with the

⁹ G. Elliot Smith, *Human History*, 1930.

¹⁰ *ANTIQUITY*, 1928, II, 161-7.

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undoubted eruption of Toltec influences into Yucatan, it is possible that the Xiu eviction from Champoton in c. A.D. 950 may have been connected with the landing of the invaders. The Nahua Napoleon may have come by sea and for the first time in history Nahua and New Empire Maya faced each other.

Yucatan, as we have seen, was probably fairly unified under the Itzas at Chichen, except for such pockets of independence as the Xiu-garrisoned seaport of Champoton. But neither Xiu nor Itza would have been capable of offering effective resistance to the invader, for it seems certain that neither the bow nor the spear-thrower was known to the Maya. Minus those weapons the Itza levies were probably easily out-classed and dispersed. Toltec bow and spear-thrower may have proved as demoralising as did the Prussian needle-gun in the war of 1871. Freely interpreting Landa, it seems that the Toltec army marched through the country, captured Chichen Itza, and laid the surrounding Maya under tribute.

Quetzalcohuatl-Kukulcan commenced to prove himself a statesman as well as a soldier. Abandoning Chichen Itza he had Mayapan built as a kind of federal capital. This was in A.D. 989, according to the independent account of Herrera.¹¹ A year later Uxmal was founded a score or so of miles south of Mayapan, and, in conjunction with Mayapan itself, Itzamal, and Chichen, formed the new Yucatecan Federation or League.

This brings us again to the record of the Xiu chronicles. According to one version of these, the Tutul Xiu, c. 990, 're-established Chichen Itza'. According to another Ahzuitok Tutul Xiu, the Xiu Moses who brought to a close the many wanderings of his tribe, founded Uxmal in 990. The latter happening, coinciding with the Kukulcan legend and the fact that Uxmal had been for centuries before the Spanish Conquest regarded as an exclusively Xiu city, is the more probable. Quetzalcohuatl-Kukulcan may have deliberately invited the straying Xiu tribe to settle in the region of Uxmal in order to counterweigh the power and pretensions of the Itza.

For some years he himself appears to have ruled the League from Mayapan. Then he disappeared from the scene, probably in company with the greater part of his Toltecs, and the Itza Cocomé family ruled in Mayapan as senior members of the League.

¹¹ *Historia general de los hechos de los Castellanos en las Islas i tierra firme del mar oceano*, 8 decads. 1601, 1615.

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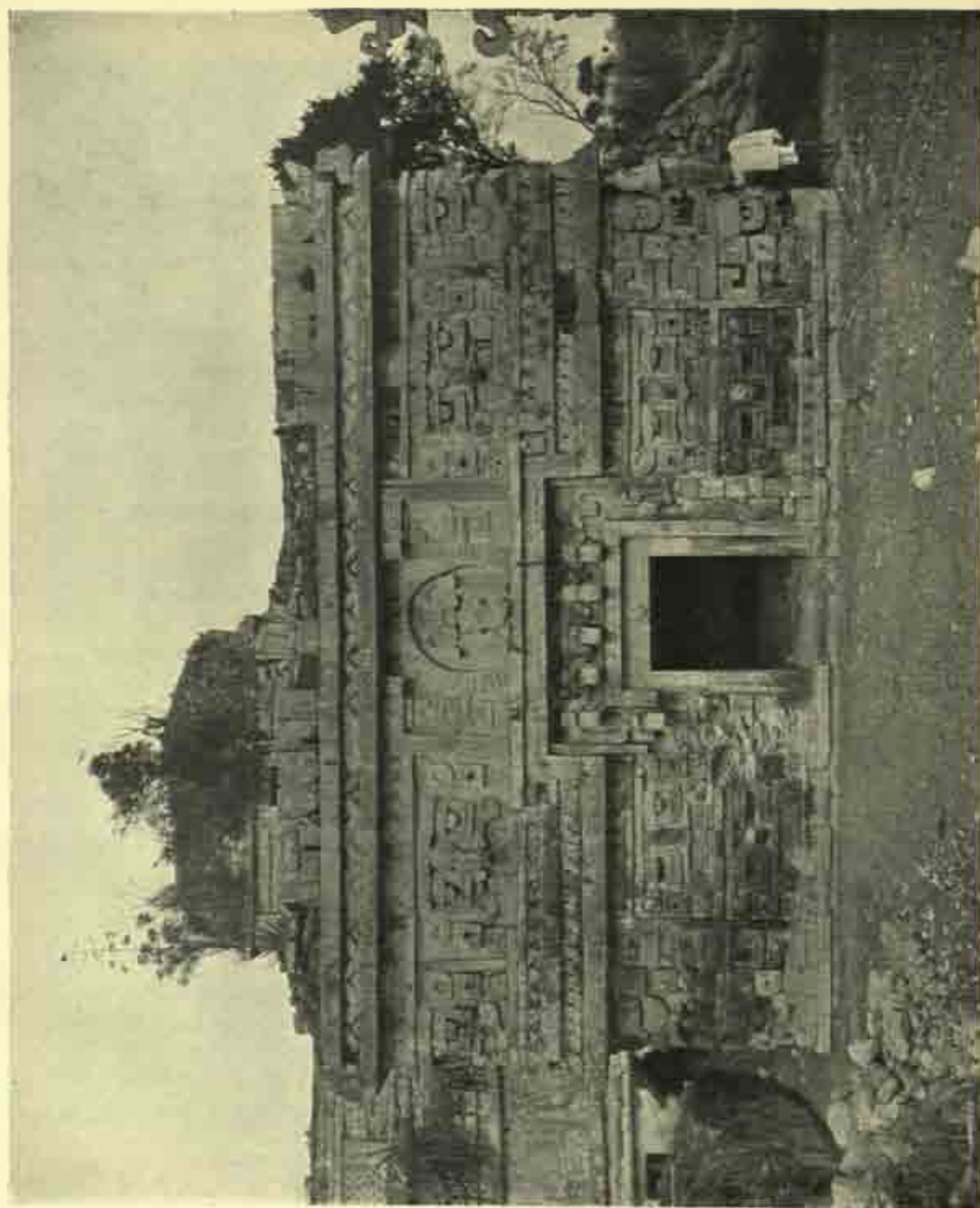
So far the materials for the filling in of this outline have been almost entirely written or traditional. But the League period is recognized by all archaeologists as marking a definite florescence of New Empire art. The great buildings of the Casa Colorada and the Caracol at Chichen are usually assigned to it, as are the principal architectural achievements of Uxmal, Labna, Kabah, Hochob, Chacmultun. Façade decoration comes into its own again, though now in the form of intricate formal mask panels. Decorative stone lattice work appears. The vertical roof structure becomes common.

It is impossible that this New Empire Renaissance came into being except through outside influences. But recognition of this fact is not yet by any means general. The painstaking investigator of sites and ruins is apparently but seldom acquainted with the mass of Yucatecan tradition and legend collated by the Spanish fathers. Unless the Kukulcan legend is, for the time being, accepted as at least partially based on historic events, the causes of the Renaissance might well be relegated to the benevolent urgings of the Yucatecan gods alone. Captain Joyce and Mr Thompson do not admit Toltec cultural influences in Yucatan until *after* the collapse of the League, and then in the form of diffusion from Toltec-garrisoned Chichen.

But the serpent columns and characteristically Nahuatl ball courts of Uxmal and other cities are almost certainly League work. Open-work decoration on the top of temple walls is not only characteristic of Mexican architecture, but possibly Asiatic in origin. Though atlantean supports, flat roofs, and low relief sculpture showing the processional groupings of warriors may have come later, the phallic picotes of Uxmal and the phallic columns and ornaments of Labna and Chacmultun cannot well be ascribed to any other origin than the Mexican tribes, or any other period than that covered by the duration of the League of Mayapan.

Spite the frequent representations of the 'snake-bird' there are no very plausible evidences that the god Kukulcan was known to the Old Empire Maya, and, on Landa's authority, his worship in Yucatan now became general—a strange avatar indeed for Sakya Muni, if the origin of the Toltec deity was Asiatic. Probably human sacrifice as a seasonal rite of importance was also imported by the Maya from Mexico in the League years. There is a carving at Piedras Negras, in the heart of the Old Empire territory, which appears to portray a victim on the sacrificial altar, but this unrelated instance does not greatly modify the apparently general belief held in Yucatan that human sacrifice came with the 'strangers'.

PLATE II



INNER DOORWAY OF THE GREAT BALL COURT (TEMPLE A) AT CHICHEN ITZA
An example of Early Toltec architecture, c. A.D. 1000

PLATE III



DOORWAY IN THE EASTERN WING OF THE CASA DE MONJAS, CHICHEN ITZA
An example of late Toltec sculpture, c. A.D. 1250

YUCATAN

Ceremonial cannibalism, the almost inevitable concomitant of human sacrifice, did not, it is possible, become common until after the wars of the League and the second incursion of a Toltec host. Mr Payne¹² showed with considerable plausibility that in a culture which reaches to town-building and town-dwelling in a country devoid of large domestic animals the development of some such conditions as those which prevailed among the Nahua, where slaves were regularly kept in pens and fattened on maize for the table, was to be expected. But there is no record of such an appalling custom in Yucatan.

For two hundred years, until about A.D. 1200, the League of Mayapan endured, probably held together in the vibrant equilibrium of the cities' jealousies. Then comes in the *Xiu Books of Chilan Balam* record of a series of events in which the Xiu themselves appear to have played at first a neutral part. Hunac Ceel, the Cocomer ruler of Mayapan, attacked and overthrew the rule of Chac Xib Chac, the 'king' of Chichen Itza. The League fell apart. In the first uncertain course of the conflict Hunac Ceel called in an army of mercenaries from Tabasco. These, after the defeat of Chac Xib Chac, he established in Chichen as a permanent Toltec garrison.

To this event is generally ascribed the Toltec cultural evidences throughout the peninsula, and it is indeed possible that a few new motifs in architectural decoration and in sculpture may have been brought to Yucatan by these mercenaries, practised by them in their stronghold of Chichen, and copied by the surrounding Maya cities. But such influences, except perhaps in the domain of religious rite, were probably slight enough. By another hundred years these Nahua appear to have been absorbed in the surrounding Maya populace. For, at the end of that space of time, c. 1300, the Xiu abandoned their neutrality, appear to have placed themselves at the head of the revolt of the Itza nobles, and 'Mayapan was destroyed'. There is no mention of the Cocomes receiving aid from their Toltec garrison in Chichen.

Probably it was at this time that the gradual splitting up of the peninsula into the states which the Spaniards found began. The Cocomes of Mayapan fled to Kimpech (Campeche), apparently a settlement also ruled by Cocomes. The Xiu, after an unsuccessful endeavour to induce the Itza nobles to accept their overlordship, retired to Uxmal again. Mani, the state which they built up around that city and their older capital, remained the dominant power in Central Yucatan.

¹² *History of the New World called America*, 1899.

ANTIQUITY

Meantime it is probable that culture was already on the decline throughout the length and breadth of the New Empire. Mayapan, in which only the Cocomes power appears to have been destroyed, was held by now this adventurer, now that. The Cocomes plotted in Kimpech. Elaboration of temple rites—the Maya temple now dominated by the hybrid Quetzalcohuatl deity—went steadily on. Cozumel Island, probably an independent 'state', had acquired through all Central America a reputation for sanctity, and, as Bernal Diaz was later to record, pilgrims from remote, un-Maya lands came to worship at the island shrines and invoke the island oracles. The great pilgrim highway between Chichen and the sea-coast opposite Cozumel was probably built at this period.

Then, *c.* 1350, an obscure version of the *Books of Chilán Balam* record that 'cannibals came'. This probably refers to a descent of Caribs on the eastern shores, in the state of Ekab and south of Ekab. They may have seized Tulum, and been responsible for the later growth of the hybrid 'Tulum culture' which left the sea-coast of eastern Yucatan strewn with dwarfish temples. There can be little doubt but that it was among the descendants of these cannibals, hardly yet 'Mayaized', that Valdivia and his companions, the first Europeans to come in contact with the New Empire, were wrecked nearly 150 years later.

The history of that 150 years, the closing phase in the adventure of the great lost expedition of civilization which had appeared so mysteriously in the Chiapas forests some 1700 years before, is in portions still obscure enough. Early in the fifteenth century the Cocomes, backed by an army of barbarian Tenochcas and Xicalanques lent them by Mexico, returned to Mayapan and ruled there for a short time. This third army of mercenaries to appear in Yucatan was not even Toltec in name; the Toltecs were by then legendary figures in Mexican memory. It seems to have been composed of Nahuas at a low stage of culture, and probably, terrorism apart, they exerted little or no effect on the life of the Maya.

They constituted Yucatan's last group of invaders, and their's was the last eddy of the many culture-waves which had flowed across the history of the New Empire. The subsequent course of that history is accordingly outside the province of this sketch. How the Itza again revolted, again invoked the aid of the Xius of Mani, and again evicted the Cocomes from Mayapan; how the last vestige of political coherence vanished from the peninsula, and a host of small states (*see map*) arose;

THE MAYA NEW EMPIRE IN YUCATAN

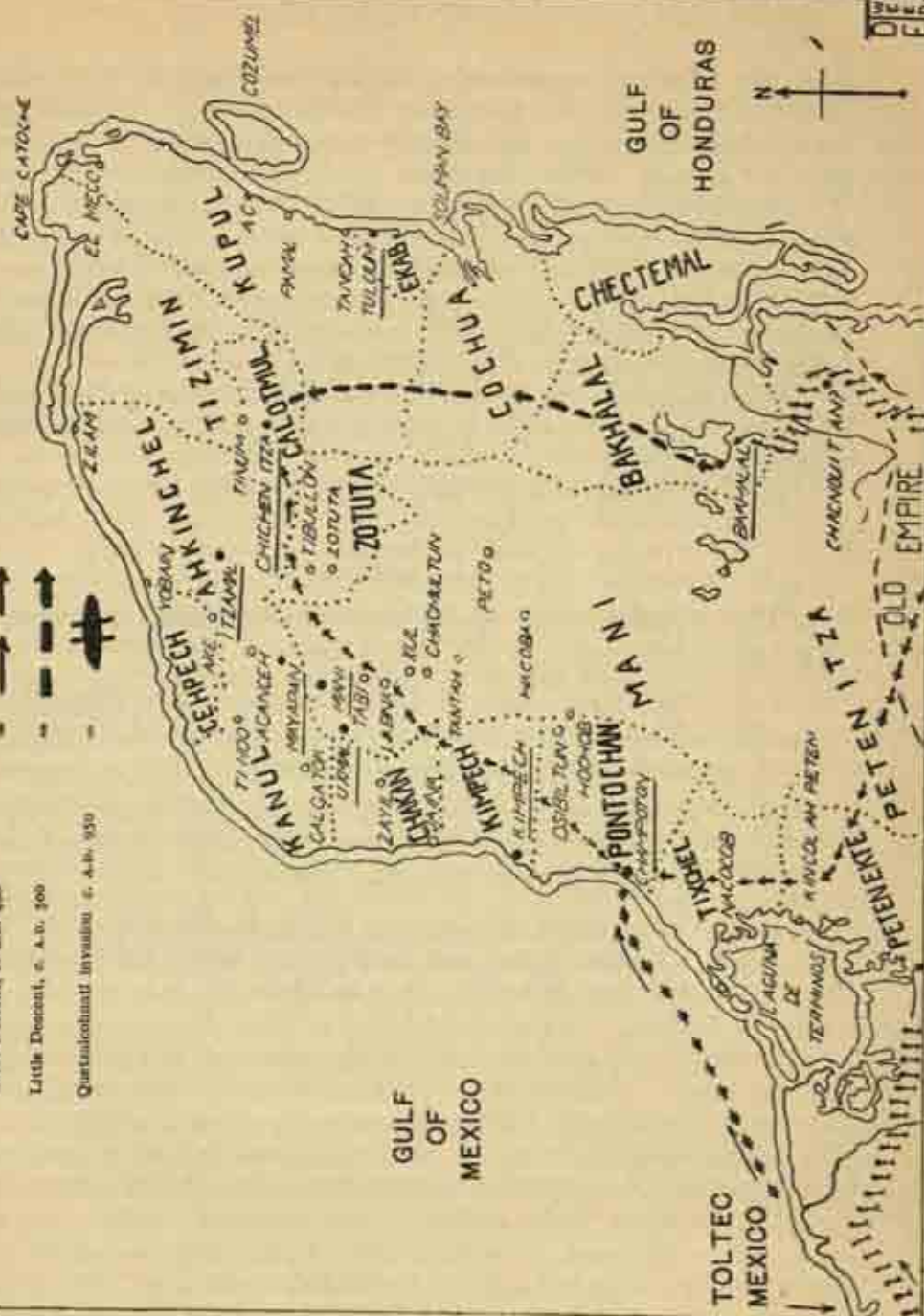
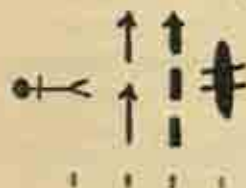
Probable routes

Tutuil X'ib, c. A.D. 163-410

Great Decent, c. A.D. 400

Little Decent, c. A.D. 500

Quintanahuat Invasions, c. A.D. 950



ANTIQUITY

how the Mexican mercenaries forced their way to the northeastern coast and established themselves in the district of Kanul, there to retain their reputation for ferocity until the coming of the Spaniards ; how a remnant of the Mayapan Cocomes established themselves in Tibullon and engaged in endless warfare with the surrounding Itza and their ancient enemies, the Tutul Xiu of Mani ; how first a great storm laid waste all Yucatan, how on its heels followed a pestilence which wiped out half the population, how one hundred and fifty thousand Maya perished in a culminating civil war—of these happenings Landa and other historians already cited tell in detail.

One morning, the priests of Cozumel, tending their temple altars looked up and saw far out to sea the passing of monstrous sea-houses gleaming in the sun.

It was the year 1493 : those were the ships of the Portuguese.

ILLUSTRATIONS

The accompanying plates illustrate the three principal phases of art and architecture in the New Empire of the Maya in Yucatan :—

- I. The Akat 'Cib at Chichen Itza. An example of pure New Empire architecture (A.D. 600-800), though possibly showing Early Toltec influences.
- II. The inner doorway of the great ball court (temple A) at Chichen Itza. An example of Early Toltec architecture and decoration. (c. A.D. 1000).
- III. Doorway in the eastern wing of the Casa de Monjas at Chichen Itza. An example of Late Toltec sculpture in the New Empire. (c. A.D. 1250).

Air-Photography in Northern Ireland

by D. A. CHART

ON the suggestion of Rev. L. P. Murray, and influenced by the discoveries made at Stonehenge and elsewhere by means of air-photography, the Ancient Monuments Advisory Committee for Northern Ireland, at a meeting held 27 April 1927, agreed to pursue similar investigations in the Province. The Ministry of Finance, which in regard to Ancient Monuments corresponds to H.M. Office of Works in England, gave its support and asked the Air Ministry for its co-operation. This was readily accorded, and 502 Ulster (Bombing) Squadron of the Royal Air Force stationed at Aldergrove, co. Antrim, was instructed to give assistance, so far as was consistent with its ordinary duties. Valuable help was given by Wing Commander A. Claud Wright and the Squadron under his command, and the results have been decidedly interesting.

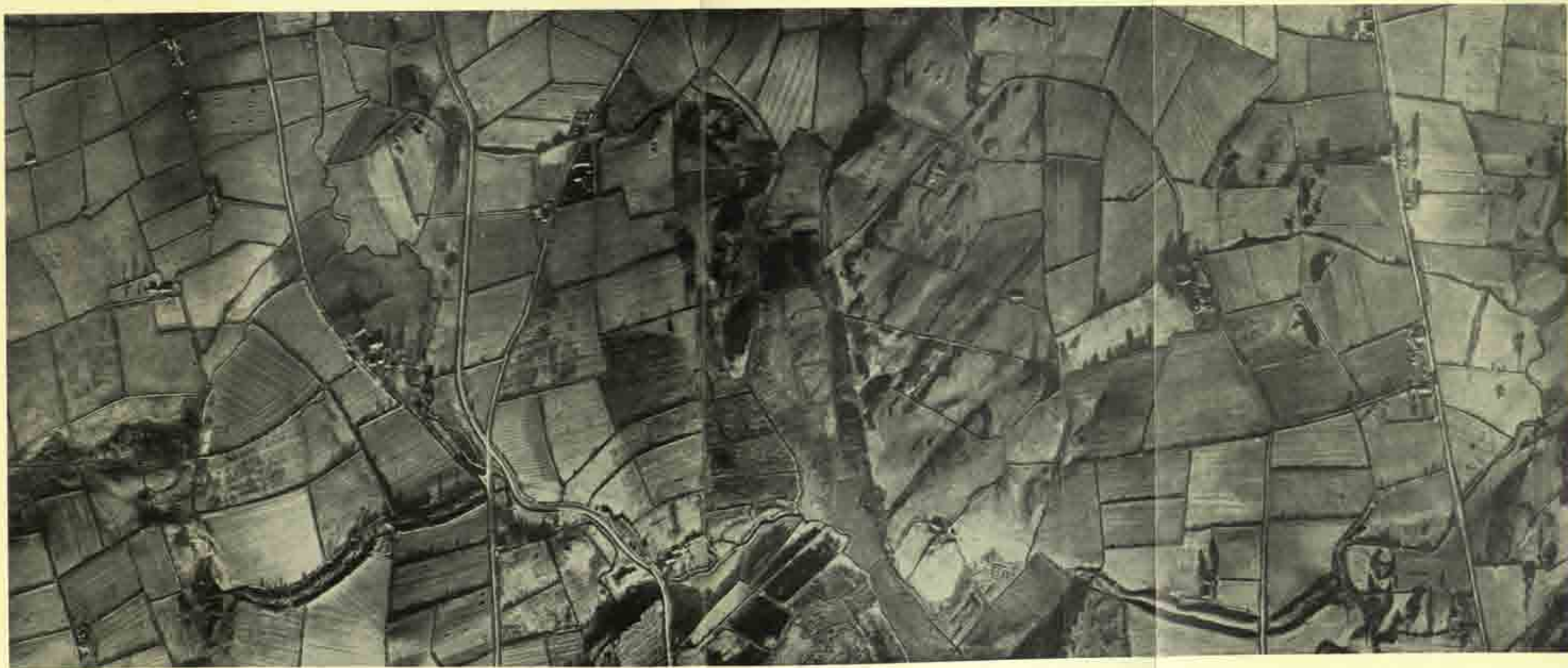
At first attention was directed rather to the elucidation of various points concerned with the leading monuments of the country, most of which are in the Ministry's care—for instance the extent and plan of vanished buildings of Devenish, Inch and other abbeys, and the sites of suspected Celtic churches near the Round Towers at Antrim and at Maghera (co. Down). No very striking discovery was made in the course of these investigations, but tentative photographs of another type of monument, the great ring fort at Navan, co. Armagh, showed that excellent results were likely to be achieved by the study of the earthworks which are so numerous in Northern Ireland. The R.A.F. officers themselves endorsed this view, and pointed out that the vicinity of their own aerodrome was extremely rich in such remains. Some of these which were visible from the air were not marked on the Ordnance Survey as antiquities, or even as natural features. In other cases air-photography revealed unmistakable earthwork sites in places where neither written record nor popular tradition had reported their existence. It was thought proper, accordingly, to concentrate on this side of the work, and particularly to devote attention to three large constructions of this kind, which have long provided problems for archaeologists.

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The first place selected was the fort at Navan, already mentioned, which is the ancient Emania, and is believed to have been the palace of the Kings of Ulster from about 300 B.C. to A.D. 330, celebrated in the romantic stories of Deirdre, Cuchullin, and the Red Branch Knights. It was hoped that the sites of buildings might be traced within the great round enclosure, other than the high mound and small rath already known to exist; also that outworks and tracks might be found, as at Stonehenge. A photographic mosaic was made of the ring and its vicinity, the central portion of which is shown on plate II. Although the details are very clear, no striking addition to knowledge has so far been made in the central part. About 550 yards to the eastward and beside the main road to Armagh the mosaic shows a dark circular marking (not included in the plate). This, on examination, was found to be a low, circular, green mound in a field, composed, according to the testimony of the owner, of small stones, in contrast to the rest of the field which is marshy. It is about 80 yards in diameter, and its highest point is 2 to 3 feet above the general level. Its vegetation on the day of inspection appeared to be shorter and brighter of tint than the rushy growths around. The owner also stated that a brook which runs beside the mound had, within his recollection, encircled it. This may have been some kind of outwork or cattle enclosure connected with the main fort. A less definite smaller marking was seen close to this mound but a little to the north. The mosaic shows other details of a rather indefinite type, the most notable being a dark circle just outside and to the west of the great ring beside letter F in plate II, but nothing corresponding to this could be traced on the ground. Anticipations that tracks might be found leading towards Armagh and the old Ulster frontier near Dundalk were not realized. These tracks may, however, survive in the form of laneways.

In the south of county Armagh the large, but little known and hitherto rather indefinite entrenchment at the Dorsey, lying on the main road between Armagh and Dundalk, was very clearly photographed from the air, and a mosaic constructed, the centre of which is shown as plate I. The picture gives a far clearer conception of this striking work than has yet been obtained. It is a system of ramparts and trenches lying across one of the entrances into Ulster from the south. The name of the locality, 'Dorsey', indicates that it was regarded by the ancient Irish as a gate. Although the entrenchment is spread over a tract of land about 1800 yards long by from 350 to 600 yards wide, there are breaks in its continuity. Supposing it to have been an enclosed

PLATE I



THE DORSEY ENTRENCHMENTS; ABOUT 4 MILES SOUTH OF NEWTOWNHAMILTON, CO. KERRY
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ANTIQUITY

fortification, its perimeter would have been enormous—at least three miles—and several thousand men would have been required for its defence. Furthermore the supposed enclosure is cut in two by a large bog and is pierced by several streams. Although its situation and construction are, generally speaking, advantageous from the military point of view, it has no very regular plan, but wanders over hill and dale in a manner which suggests a boundary or a barrier rather than a stronghold. Various questions arose :—

(1) Was it a continuous enclosure or merely two parallel lines of defence of which the first or southward was much stronger than that to the north ;

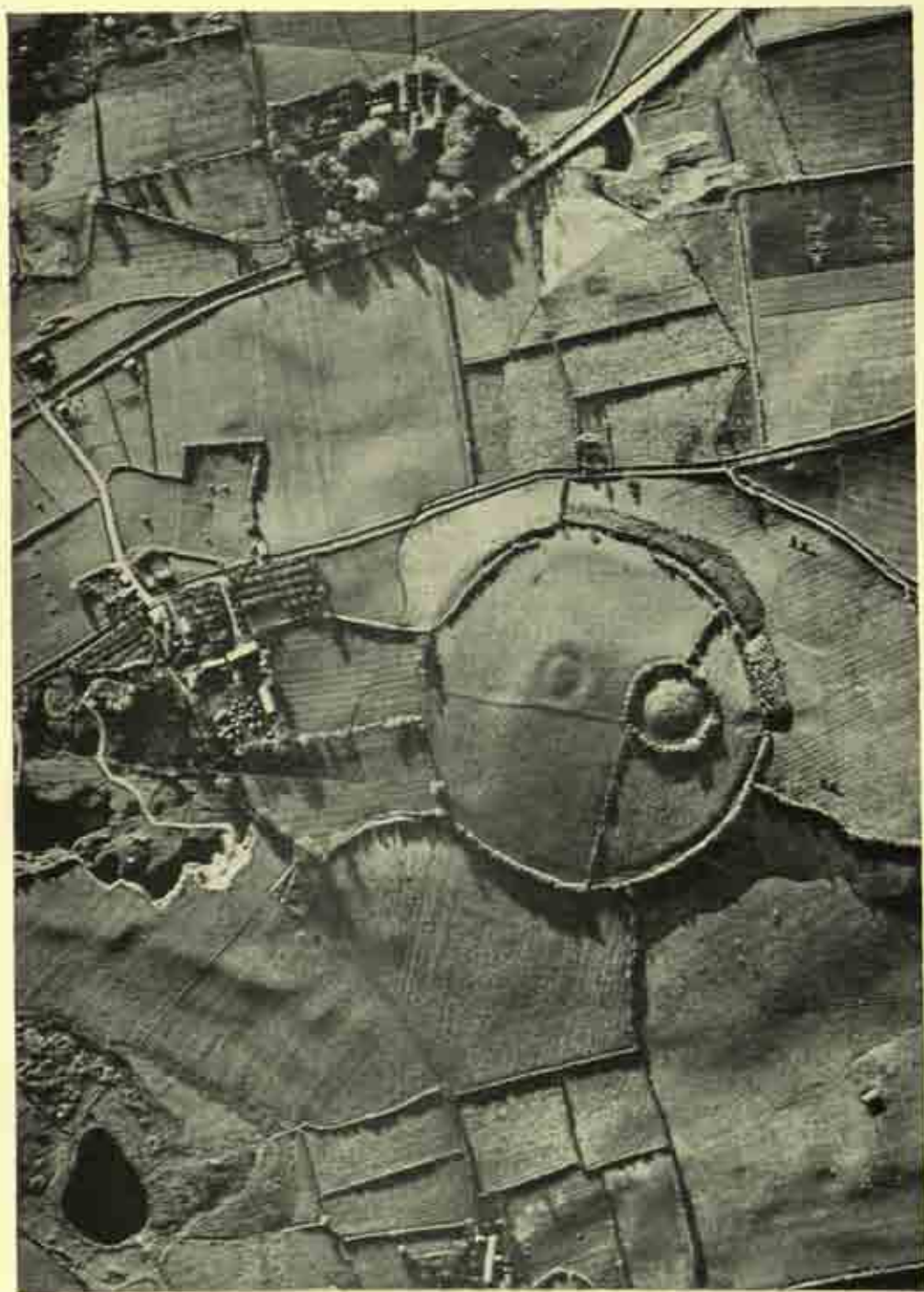
(2) Was it part of a travelling earthwork, and, if so, could it be linked up with any other similar constructions on either side.

Air-photography has revealed with some certainty and completeness that it was definitely an enclosure and has thrown new light on the second question. (See plate 1).

The line of the entrenchment is shown on Mr T.F.O. Ripplingham's tracing (fig. 1) and has been confirmed on the ground throughout its length. By a fortunate chance Flying Officer Ellison, who had taken many of the photographs, was on leave in Armagh and was able to cooperate in this part of the work. The continuity of the enclosure is shown by the existence everywhere of vestiges perceptible to the aerial camera, except in situations where the construction of an earthen barrier was extremely difficult, as in bog or rocky ground. But even here the indications, though not apparent in the air-photograph, were not completely absent, for the ground party, at the southwestern corner where the entrenchment approached a bog, was fortunate enough to find six inches under the surface a large oaken timber shaped like a pile and blackened with long submersion in the swampy soil. Such timbers have often been found in similar positions elsewhere in the entrenchment, and it is a legitimate deduction that the earthwork crossed swampy ground by some kind of stockade carried on piles. Similarly, on rocky ground thinly covered with earth, as in the middle of the picture (see fig. 1), the abundance of loose weathered stones suggests the erection of defences of dry piled stone in lieu of an earthwork. The original defences in such cases, except where they survive as field boundaries, have probably been carried away piecemeal as building material.

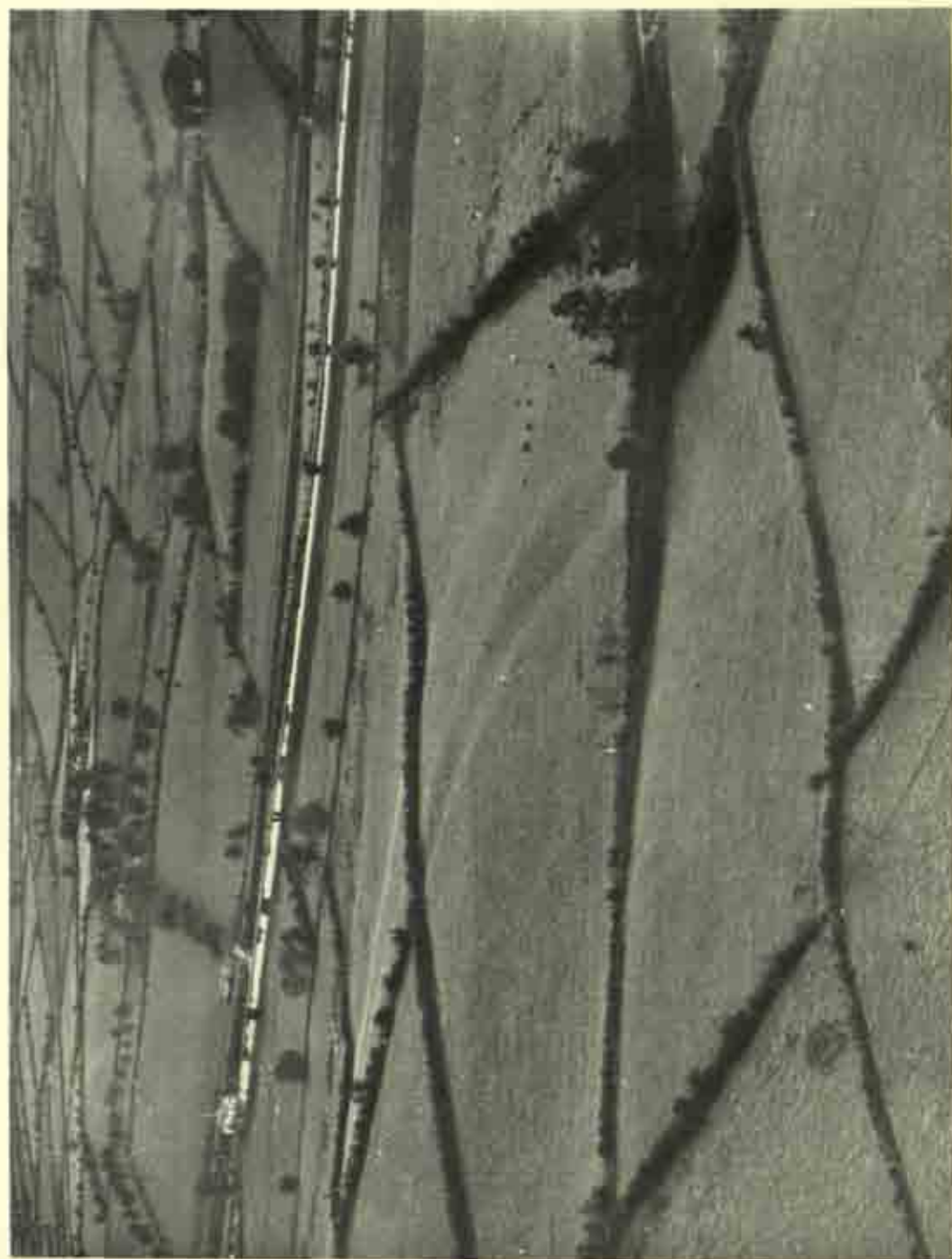
The air-photographs are inconclusive as regards the connexion of the Dorsey with other travelling earthworks. The appearances in the bog to the west of the main entrenchment were either indiscernible

PLATE II



CIRCULAR EARTHWORK AT NAVAN (EMANIA) 2 MILES WEST OF ARMAGH
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PLATE III

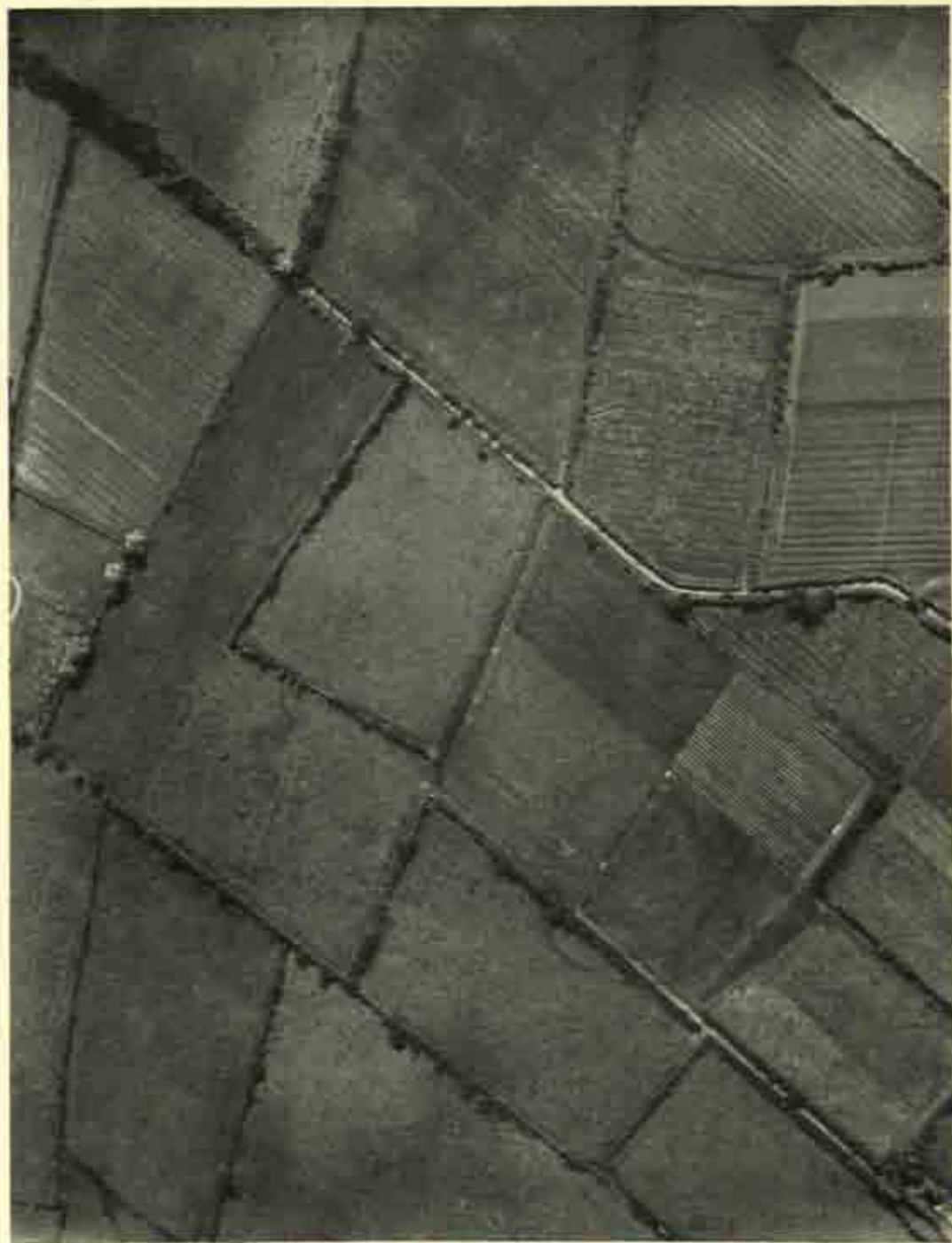


THE DANE'S CAST, $\frac{1}{2}$ MILE SOUTHEAST OF POYNTYPASS, CO. DOWN

The travelling earthwork enters the picture as a line low on the right, crosses the large field in the centre obliquely, and then becomes a field boundary

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PLATE IV



AUGHAMULLAN, NEAR CRUMLIN, CO. ANTRIM: CONCENTRIC MARKINGS OF EARTHWORKS TOWARDS THE LEFT HAND AT THE BOTTOM OF THE ILLUSTRATION

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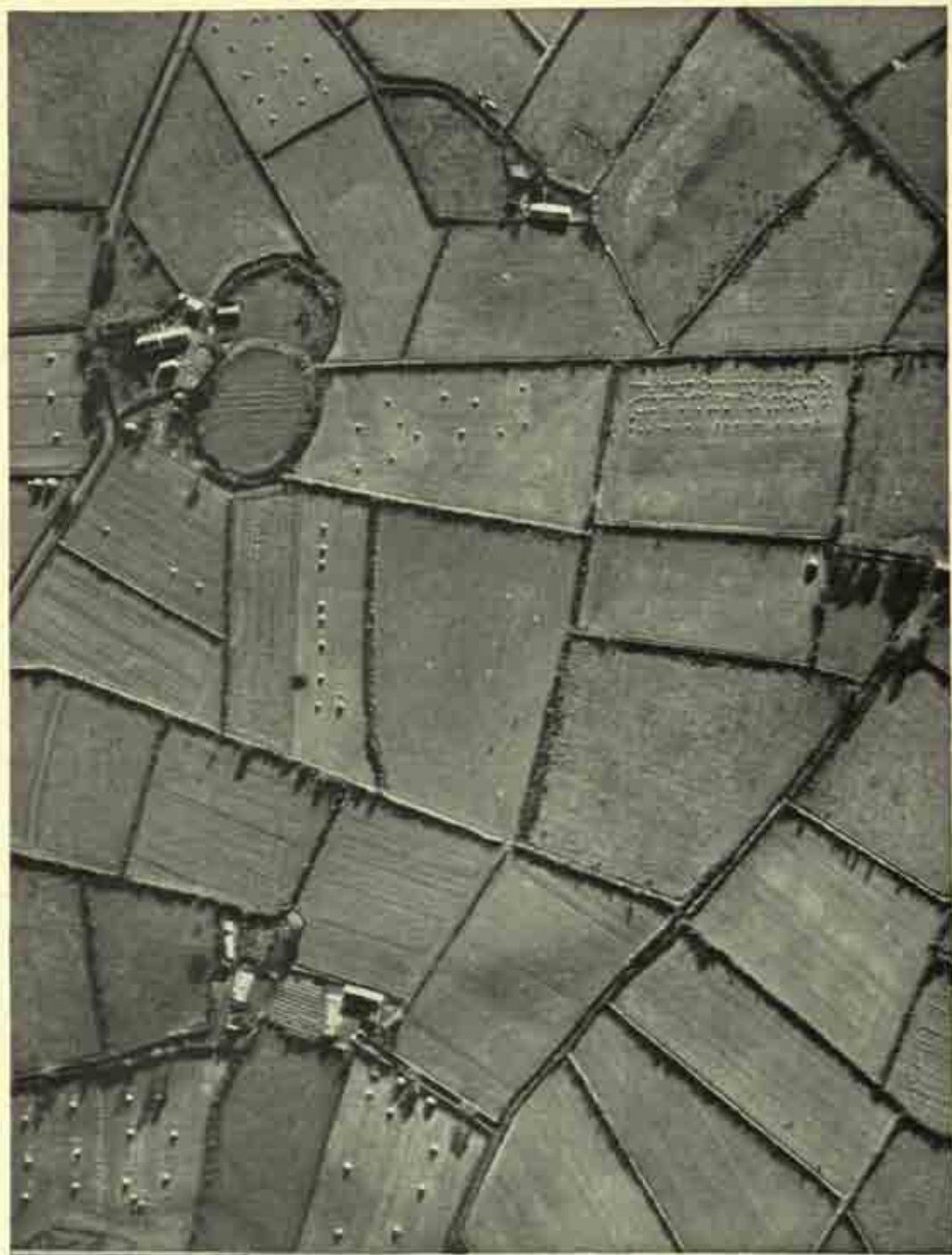
PLATE V



THREE EARTHWORK SITES AT DALLYGINNIFF, NEAR ALDERGROVE: THE SITE AT THE TOP OF THE ILLUSTRATION IS WITHIN
300 YARDS OF LOUGH NEACH

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PLATE VI



OVERLAPPING RATHS, GLENLOUGHAN, NEAR SCARVA, CO. DOWN.
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PLATE VII



CONCENTRIC EARTHWORK MARKINGS IN SWAMPY GROUND BETWEEN STEEPLY RISING SLOPES

Unidentified but known to be between Drenote and Maghralin

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AIR PHOTOGRAPHY IN NORTHERN IRELAND

on the ground or resolved themselves into natural outcrop. Turf was actually being cut in this bog at the time of inspection but the cutters, on being asked whether they had found any large oak timbers similar to those found at the southwestern angle, replied that they had found no timber but the usual willow. To the east of the main entrenchment a curious spur or flanker appears to run down to the river (marked as 'low mound leading to swamp' in fig. 1), but on inspection no evidence was found that it continued across the stream, the photographic appearance on that side being due to the overflow from a well.

The general trend of ground verification will be sufficiently indicated by a comparison of plate I with figure 1.

Although the purpose of this article is to relate what has been found rather than to theorize from the observed facts, a single observation may be permitted: namely, that the entrenchment was intended to block an opening. It has on its eastern flank swampy slopes falling to a brook, on the far side of which is scrubby and difficult foothill country rising to the mountain mass of Slieve Gullion. On its southward side the ramparts are extraordinarily high, attaining to the dimensions of a railway embankment and accompanied by very deep trenches, the bottom of the trench often being 20 feet below the rampart top. On this side, too, swampy ground and the course of a small stream were utilized as part of the defence. The western flank was guarded by a bog. On the northern side the defences are less elaborate and not so well-preserved as on the southern. The present main road from Dublin to Armagh and the northwest passes through the entrenchment. The general conclusion appears to be that this was a frontier stronghold of a most elaborate and extensive kind; perhaps also a place of refuge for the surrounding people and their herds; and that the foe against whom it was erected was expected to come from the south. History relates that the kingdom, having its capital at Navan near Armagh, was destroyed by invaders from the south about the year A.D. 330.

At the same time the long travelling earthwork between the counties of Armagh and Down, known as the Dane's Cast, was flown over for the whole of its visible length, and its course noted from the air. Photographs of sections have been taken, of which plate III is a specimen, showing how clearly the course of the Cast is visible to the eye of the camera. The problems connected with this Cast, of which a solution was desired, were:—

- (1) its termination at the northern and southern ends;
- (2) the gap in the middle in the neighbourhood of Bessbrook.

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As regards (1), the R.A.F. officers could find no continuation beyond Scarva, but remarked on the number and strength of the earthworks in that neighbourhood, at what appeared to be the northward termination of the Cast. Here, for instance, still stand the great round forts of Lisnagade and Lisnavaragh, the larger of which is some 140 yards in diameter, both being encircled by successive deep ring trenches. At its southern end they reported that aerial indications showed that the Cast turned eastward towards the sea in the neighbourhood of Meigh, and ended in country that was probably difficult in the past. The gap in the middle at Bessbrook is a country of deep valleys, and is also remarkable for abundance of earthworks. The air-photographs of this district have added a considerable length to the identified remains of this earthwork.

The Squadron furthermore reported all visible appearances having the form of earthworks, seen from the air in the immediate neighbourhood of their aerodrome. These are fairly numerous and many have been investigated on the ground. At the same time the Squadron, at the request of the Ministry, photographed some of the more striking appearances, which they observed either there or generally on their flights over the country.

The site of a very large triple or quadruple ring earthwork at Aughnamullan, about 3 miles ENE of Crumlin, co. Antrim, about 100 yards in diameter, is shown in plate iv. This site is a level rushy field and there seems to be no surface indication. In plate v an equilateral triangle of circular earthwork sites at Ballyginniff, 3 miles west of Aldergrove aerodrome, close to the eastern, or Antrim, shore of Lough Neagh, is shown. None of these is marked on the Ordnance Survey map, though the existence of one might be inferred from a semicircular nick in the field boundary embodying part of its arc. The sites are roughly 200 ft. in diameter, are distant 400 yards from each other and are on level marshy ground. The fort at the nick in the centre has the remains of an inner and outer rampart embodied in the field boundary. That near the top edge has part of its trench in the field boundary. That near the right hand edge of the picture is only shown by a slight mounding of the surface.

The study of the earthworks, as revealed from the air, confirms the view that, although all are called 'forts' colloquially, many of them could have had no military purpose. They are far too numerous, and cases occur of overlapping, of pairs side by side, and of situations in deep ravines which could be commanded from the surrounding hillsides.

AIR PHOTOGRAPHY IN NORTHERN IRELAND

Overlapping at Glenloughan, near Scarva, co. Down, is seen in plate VI. This was examined on the ground by the late Mr A. Robinson, formerly Commissioner of the Office of Works, Dublin, who reported that there can be no question as to the pair overlapping. The rath of smaller circumference, which is the earlier, has been overlapped by the larger to the extent of from 40 to 45 feet. They are but slightly raised above the natural surface of the ground.

A triple-ringed fort in a swampy valley between steeply sloping hills is shown in plate VII. It was taken in the early days of the enquiry when oblique photographs with a small field of view were used, and, not including a house, road, or field of irregular shape, has hitherto proved impossible to identify. It is known to be one of a series illustrating earthworks between Dromore, co. Down, and Magheralin, but neither local enquiry nor close study of the Ordnance Maps of the district have yet been able to disclose its position. Any information would be welcome.

The French Excavations at Minet el Beida and Ras Shamra in Syria

by F. A. SCHAEFFER*

*Leader of the Archaeological Expedition at Ras Shamra
Curator of the Prehistoric and Gallo-Roman Museum of Strasbourg*

THE excavations at Minet el Beida and Ras Shamra, begun in 1929 and continued in 1930,¹ were undertaken at the suggestion of M. René Dussaud, Member of the Institute and Conservator at the Louvre. The natural harbour of Minet el Beida (the White Bay)² lies facing Cyprus; and it was this fact which gave M. Dussaud³ the idea of a Mycenaean colony from Cyprus importing thither the copper which had to be disembarked for transport to the interior and to Mesopotamia. This theory was supported by the fact that 1000 metres from the bay is a huge tell (mound), called by the natives Ras Shamra (Cape Samphire), which might well hide the ruins of this assumed sea-port.

In 1928 there came the accidental discovery of a burial-vault at Minet el Beida, of corbelled construction and containing Mycenaean and Cypriote pottery dating from the 13th century B.C. This was the first confirmation of the theories about the antiquity of Minet el Beida and Ras Shamra. The Académie des Inscriptions et Belles-Lettres, at M. Dussaud's suggestion, sent out an expedition to locate the ancient harbour, town and cemeteries of Minet el Beida. The direction was entrusted to the present writer, who chose as his assistant M. Chenet, well known on account of his excavations of the Roman kilns and glass-factories of the Argonne.

Our excavations near the bay have revealed an important cemetery containing several large rectangular tombs with corbelled vaults,

* Translated by the Editor.

¹ The first report, covering the season of 1929, was published in *Syria*, 1929, x, 285-310. That of the season of 1930 will appear in the same journal early in 1931.

² It was called Leucos Limen by the Greeks, and lies about 15 kilometres north of Latakia, in the State of the Alaouites, Northern Syria.

³ See his *Topographie historique de la Syrie antique et médiévale*, Paris, 1927, p. 417.

PLATE I



FIG. 1. BRONZE TRIPOD, FORMING PART OF HOARD, RAS SHAMRA.

Figs. 1-15. Copyright by F. A. Schaeffer

THE FRENCH EXCAVATIONS IN SYRIA

approached through a short vestibule or forecourt with stairway, the whole carefully built of well worked stone blocks. One of these tombs (no. 3) was hidden under a rather important building, to judge from the columns with attached walling which are all that remain of it today and which are not easy to explain. Directly communicating with the tombs were other still more important buildings, one of which was completely cleared this year; it contained thirteen halls, rooms and passages, without counting the upper story whose staircase with its landing are preserved. This building is generously provided with wells and water-channels, all of which have been rendered useless by artificial filling or concrete covers. Upon and beside these wells, along the passages, in the rooms and at the foot of nearly every column, were placed votive offerings of painted Mycenaean and Cypriote vessels, ordinary pots and objects of bronze, silver and gold, such as pins, lamps, knives and daggers. They prove that the building cannot have served a merely utilitarian purpose. Perhaps it may be regarded as one of those houses of the dead like those which some Egyptian pharaohs had built beside their funeral vaults. The comparison is strengthened by the fact that the civilization of Ras Shamra, as we shall see presently, borrowed much from that of the Nile Valley.

A still more important series of discoveries awaited us to the north of the tombs, towards the sea. Here, at a depth of between 0 m. 50 and 1 m. 50, near a roughly-built room, lay about 80 deposits consisting of Cypriote, Mycenaean and local pottery (fig. 7), bronze implements and weapons, stone weights conforming in part to the Egyptian mina of 437 grammes, shells or just plain pebbles from the shore close by. There were also curious stone tablets, pierced steles and stone phalli, large and very life-like. The richest deposit, near the centre of the group, contained two horus-hawks in the Egyptian style; one of them, of bronze (fig. 2) bore the double crown of Lower and Upper Egypt, the other, of bronze and gold (fig. 4), held the Uraeus between its feet. Not far off lay a statuette representing a seated deity (fig. 3) with eyes of silver and enamel, giving a benediction with its outstretched hand, according to the manner of certain Syrian gods. The chief object of the group is the statuette (25 cm. high) of the Syrian god (fig. 5) Reshef (sometimes identified with Baal); it is of silvered bronze, and the head and high coiffure are formed of a leaf of gold. The god is represented standing; formerly in his right hand he brandished a thunderbolt or battle-axe, while in his left he held a sceptre or spear, as he appears in other representations from Ras Shamra.

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Not far from the majestic Reshef lay his colleague, the goddess Astarte with the Hathor coiffure, holding the lotus in her hands. Her fair, slender form is artistically wrought in gold leaf. A necklace of quartz and carnelian beads completed the hoard.

We must imagine that this hoard and those near it had been buried in honour of some great persons, probably the kings of the adjacent city of Ras Shamra, laid to rest in the vaults we found close by.

The first vault (fig. 8), whose covering-slabs were almost level with the surface, had been plundered by natives. In the debris from it was recovered Cypriote and Mycenaean pottery of the 13th century, an engraved spatula and a bronze bracelet.

Vault no. 2 (fig. 9) had served as a quarry since ancient times. The three upper courses of the fine corbelled vault and that of the stairway had been carried away; the vault itself, the votive-niches in the walls, and the little recess alongside had all been robbed. Arrowheads, bronze spatulae and some pottery found on the floor of the tomb show that like the rest it belongs to the late Mycenaean period, and may be assigned to the 13th century B.C.⁴

The third vault (fig. 10), which is almost intact, was also visited by robbers in bygone times. They entered through a hole in the roof, carried off whatever valuable metal objects there may have been in the tomb, and blocked up the hole again after leaving. Happily their visit was clandestine, and in spite of the disorder they left behind them part of the grave-goods, which were very sumptuous, remained undisturbed and they did not even enter the passage. It was by this way through the entrance of the tomb that we went in, collecting the native offerings of pottery which were placed in the corner of each step, leaving the middle of the staircase free. They consisted of Canaanite terracotta lamps, small conical vases, a fine Mycenaean crater with overlapping ornament and a magnificent intact Egyptian two-handled vase of alabaster (fig. 11). On the threshold of the fine door of the vault lay a well preserved human skull; it is difficult to say whether it belonged to an attendant who was sacrificed and buried at the entrance of his master's tomb, or whether it had been thrown there by the robbers when they broke into the vault.

The skeletons—at least four in number—had suffered at the hands of the robbers, the bones were scattered and the skulls broken. But

⁴ The vault is 4 metres long and 3 metres wide; its present height is 2 metres; the stairway is 4 metres long and 1 m. 90 wide.

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in their haste the robbers failed to search thoroughly the corners of the vault, where they missed finding rings and beads of gold or of silver and iron—then regarded as a precious metal—haematite cylinder-seals, faience and alabaster vases and, above all, oval ivory boxes, one of which has a splendidly carved lid. It represents the Goddess of Fertility (the 'potnia theron'), seated on a throne flanked by two he-goats, and it is indisputably the finest Mycenaean ivory actually known³ (fig. 12). The pottery dates this vault too to the late Mycenaean (13th century B.C.).

Our excavations on the northern projection of the mound of Ras Shamra brought to light a large temple with two rectangular courts joined together and enclosed by thick walls. We found fragments of life-size granite statues of gods which had once stood on raised stone pedestals in the court; their style is that of the end of the 18th dynasty (1580-1350). From a stele dedicated by Mami, royal clerk of the Treasury, to Baal of Sapouna, we get the ancient name of the town. This large temple of Egyptian character reveals the strong influence exercised by the pharaohs or even their political control of the land of Sapouna in the 14th and 13th centuries B.C. Beside it we found several shrines of lesser importance which appear to have been devoted to the cult of local divinities, two of whose images we found. One, female, was mutilated; the other, male, was fortunately intact. It represents a god in a standing posture, with an Egyptian coiffure of ostrich-plumes; on the forehead grows a spiral horn; in the left hand is a spear, and in the right the *hiq*—a kind of sceptre presented by the Egyptians to foreign rulers. The god is clothed simply in a loin-cloth kept in position by a belt with a big-pommelled dagger; he wears leather-thonged sandals with toes pointed after the Hittite style.

Beside the temple, as at Nippur, stood a school or seminary where the young priests must have learnt Sumerian—the Latin of those times—and the other languages used at Sapouna; where also they learnt the difficult profession of a scribe. We found their exercises in cuneiform writing, their lists of Sumerian and Babylonian (Accadian) words, as well as regular bilingual dictionaries intended to assist them in reading and composing religious and diplomatic documents. A letter quite in the style of the well-known Amarna correspondence refers to

³ See R. Dussaud et F. A. Schaeffer, 'Ivoires d'époque mycénienne trouvés dans la nécropole de Ras Shamra (Syrie)', *Gazette des Beaux Arts*, 1930.

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alterations of the frontier between three hitherto unknown Syrian towns—Halbini, Hazilu and Panashtai.

But what gives outstanding importance to the cuneiform tablets found at Ras Shamra is the fact that most of them contain a script that is wholly unknown and which had already become alphabetic (fig. 13). Professor Bauer of Halle and Father Dhorme of the École Biblique at Jerusalem recognized a Semitic language in these documents; and they have put forward a preliminary explanation of it. The complete deciphering and first translation of the new writing are the work of M. Charles Virolleaud, the learned Assyriologist, to whom I entrusted the publication of the documents of Ras Shamra.* He has just made a communication to the Académie des Inscriptions et Belles-Lettres concerning these texts, a portion of which is composed in almost pure Phoenician and whose contents are of capital importance for the religious history of the East. The principal document is a kind of epic poem in which the chief character is called Taphon, and which consists, in its present state, of nearly 800 lines. Chief among the divinities are the goddess Anat and the god Alein, son of Baal; but there are more than 20 others, among whom are Asharat, Astarte, Dagon, El-Hokmot the god of wisdom, and Din-el the Justice of God. The bilingual glossary contains a very complete list of words and some Sumerian phrases; but instead of the Babylonian which is usually employed in these glossaries to translate Sumerian, the glossary of Ras Shamra contains a language totally unknown up to the present. M. Thureau Dangin, the distinguished Assyriologist, will shortly make known its significance. The number of documents we found this year gives ground for supposing that the school of scribes possessed an important library, containing amongst other things large tablets of three or four columns each (fig. 14), which encourage us to expect a fine harvest of new historical knowledge.

Below the floor of the library and all around it we made numerous discoveries:—silver and bronze cups, copper ingots, a vase full of silver objects, and above all a splendid collection of 74 bronze implements and weapons in an exceptionally fine state of preservation (fig. 15). It consists of 4 swords, 2 daggers, 25 flat axes, 11 spearheads, 3 arrowheads, 6 chisels, 4 sickles, a fine tripod ornamented with pomegranate-

*Ch. Virolleaud, 'Les inscriptions cunéiformes de Ras Shamra', *Syria*, 1929, x, 304. After him, Hans Bauer, *Die Entzifferung der Keilschrifttafeln von Ras Shamra*, Halle, 1930. P. Dhorme, *Revue Biblique*, 1930.



FIG. 2. HORUS-HAWK IN BRONZE



FIG. 3. SEATED SYRIAN GOD



FIG. 4. GOLD-INLAID HAWK



FIG. 5. THE GOD RESHEF

PLATE III



FIG. 6. ADZES (HERMINETTES) WITH CUNEIFORM INSCRIPTIONS



FIG. 7. COLLECTION OF 13TH CENT. POTTERY, MINET EL BEIDA

PLATE IV



FIG. 8. INTERIOR OF TOMB 1



FIG. 9. TOMB 2, USED AS A QUARRY

PLATE V



FIG. 10. TOMB 3: THE ENTRANCE CLEARED.

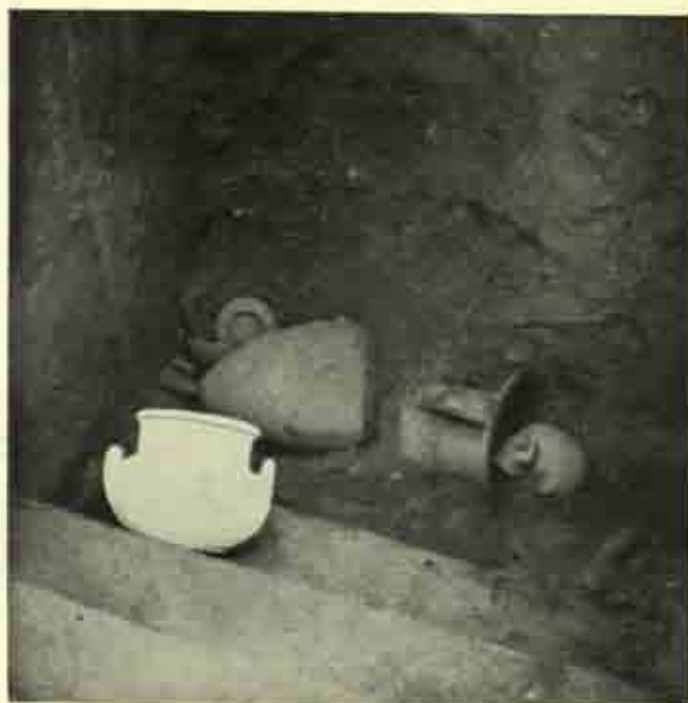


FIG. 11. TOMB 3: BEFORE CLEARANCE, SHOWING VOTIVE OFFERINGS (ALABASTER EGYPTIAN VASE, MYCENAEAN CRATER, HUMAN SKULL)

PLATE VI



FIG. 12. IVORY SCULPTURE SHOWING THE GODDESS OF FERTILITY

PLATE VII

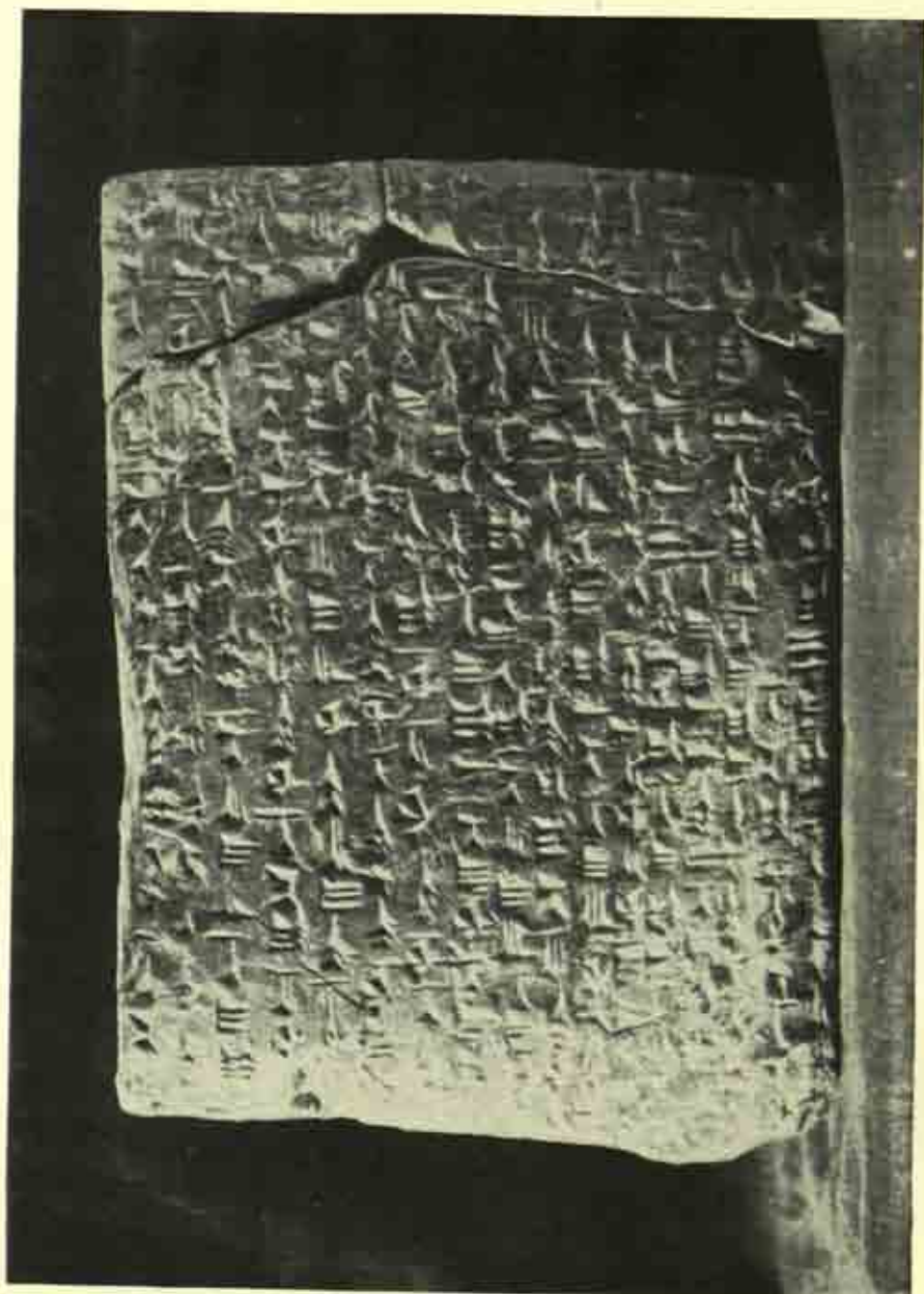


FIG. 13. CUNEIFORM TABLET WITH ALPHABETIC SIGNS

PLATE VIII



FIG. 14. TABLETS AS FOUND IN THE LIBRARY OF KAS SHAMRA

PLATE IX



FIG. 15. HOARD OF 74 BRONZE OBJECTS
(to left M. Chenet, to right M. Scharf)

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flowers (fig. 1). The most valuable objects are 5 large implements of unknown use and 9 socketed adzes (*herminettes*), five of which have cuneiform inscriptions punched upon them, probably dedications (fig. 6). The presence of two cakes of metal and the fact that several of the weapons are unfinished show that the workshop where they were made cannot have been far distant.

At a lower level, clearly separated from the one above it, which belongs to the 14th and 13th centuries, we brought to light a cemetery of the 17th and 16th centuries completely free from Mycenaean influence. The pottery belongs to native Canaanite types, with blackish or reddish slip, unpainted.

Penetrating to a yet lower depth, at 7 metres down we found crude brick walls belonging to buildings that stood here long before the existence of the overlying cemetery; these must go back to the beginning of the 2nd or even to the 3rd millennium. The investigation of them must necessarily be postponed until the two upper levels have been cleared.

The excavations at Minetel Beida and Ras Shamra will be continued next spring. But the important results already obtained and the character of the objects unearthed makes it plain that the old sea-port which the Egyptians called Sapouna had in the 14th and 13th centuries attained a position of pre-eminence. It undoubtedly derived its importance from the Cypriote copper-trade, whose entrepôt it was for intercourse with Syria, Mesopotamia and Asia Minor. At the same time there were exported thence to the Aegean the Asiatic goods brought by caravans along the many routes converging there upon the sea coast. Its diplomatic and commercial relations, therefore, were altogether of an international character. Proof of this is found in the polyglot population, including priests who understood three forms of cuneiform writing, one of them—that which was the most fully perfected and already alphabetic—being their own invention. To these languages must be added Egyptian and Hittite, bringing the number of those spoken at Sapouna to a total of five.

In the pantheon of this little state we find side by side both native Syrian divinities and those of Mesopotamia and Egypt; so that in religion too a thoroughly international atmosphere obtained.

This finds its fullest expression in art. In the ivories, the statuettes of bronze, silver and gold, in the pottery, even in the small objects and sculptures we can see, grafted on native artistic traditions, influences

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derived from Egypt, the Aegean, Mesopotamia and Asia Minor. To appreciate this fact, one has only to glance at the illustrations which accompany this article.

TRANSLATOR'S NOTE

Readers of ANTIQUITY will remember that the first brief news of the discovery of the new alphabetiform language was published in ANTIQUITY, 1928, II, 87-8, through the courtesy of Dr Virolleaud, then Director of Antiquities in Syria.

The Faiyum Depression*

by JOHN BALL

Director of Desert Surveys, Survey of Egypt

WITH the publication of Sir Hanbury Brown's *Fayoum and Lake Moeris* in 1892, it was widely believed that the problem of the situation and extent of the Lake Moeris of antiquity had been finally solved. Sir Hanbury Brown pointed out that the shore-lines of an ancient lake could be traced in the Faiyum at a level of about 22 metres above sea; he concluded that this lake, which must have covered almost the whole of what is now the Faiyum province of Egypt, was the ancient Lake Moeris, and that the remarkable gravelly ridge known as the 'Idwa Bank was the remains of an artificial embankment which had served to reclaim from the lake a comparatively small area around the present town of Medinet-el-Faiyum. Sir Hanbury Brown's views received ready acceptance, because whilst satisfying all the modern levelling and other observations which had up to that time been made, they were also in tolerable accord with the account of Lake Moeris given by Herodotus and copied by subsequent classical writers. In particular, a lake at the 22-metre level could have served as a combined flood-escape and reservoir for the waters of the Nile, such as seems to be implied in Herodotus' description; and the name of the twelfth-dynastic King Amenemhat the Third, the supposed constructor of the lake, has been extolled as that of a great pioneer of Nile-control,

* (1). RECENT WORK ON THE PROBLEM OF LAKE MOERIS. By Miss Gertrude Caton-Thompson and Miss E. W. Gardner. *Geographical Journal*, January 1929, pp. 20-60, with sketch-maps, a time-level graph, and other illustrations.

(2). PALAEOLITHIC MAN AND THE NILE-FAIYUM DIVIDE: a study of the Region during Pliocene and Pleistocene times. By K. S. Sandford and W. J. Arkell. *University of Chicago Press*, December 1929, pp. xv, 77, with 11 plates, 25 text-illustrations and a coloured map. 22s 6d.

We have also received the following paper which is not dealt with in the review here printed:—'The Pliocene and Pleistocene deposits of Wadi Qena and of the Nile Valley between Luxor and Assiut (Qau)'. By Kenneth Stuart Sandford *Quart. Journ. Geol. Soc.* 1929, LXXXV, 493-548, maps and plates.—EDITOR.

whose beneficent achievement in the Faiyum might well be imitated by the irrigation engineers of our own day in the neighbouring depression of the Wadi Raiyan.

But Sir Hanbury Brown's conclusions have been completely upset by the recent archaeological and geological researches of Miss Caton-Thompson and Miss Gardner, which prove that the shore-lines of the 22-metre lake, regarded by Sir Hanbury Brown as being those of Lake Moeris, are really those of a much older (palaeolithic) lake, which had disappeared long before dynastic times, and that the 'Idwa Bank is of natural and not artificial origin. Within the area enclosed by the shore-lines of the 22-metre lake Miss Caton-Thompson and Miss Gardner discovered other shore-lines at successively lower levels, with neolithic and early dynastic settlements, the latest and lowest of which are situated on a well-defined beach nearly 25 metres lower than that of Sir Hanbury Brown's lake. As these neolithic and early dynastic settlements bear no signs of ever having been submerged, it follows that the historic Lake Moeris cannot have had anything like the extent, or have attained nearly so high a level, as Sir Hanbury Brown had concluded, but must have been merely the shrunken remnant of a later neolithic lake, whose level had fallen so low that there could not possibly have been any return flow from it to the Nile, and whose area had diminished till it occupied less than half of the Faiyum depression. Miss Caton-Thompson and Miss Gardner conclude that Herodotus was misinformed as to the size and function of the lake; they suggest that what he saw was not Lake Moeris, but a series of basins irrigated by Nile water on the extensive slopes leading down to it, and that the traditional great engineering works of the twelfth dynasty may have comprised merely the improvement of the waterway from the Nile and the bringing under cultivation of the higher-lying 'plateau' around the present Medinet-el-Faiyum.

Drs Sandford and Arkell describe the results of a careful geological and archaeological study of the eastern part of the Faiyum depression and the elevated desert-tract between it and the Nile Valley, which they carried out under the auspices of the Oriental Institute of Chicago University as part of a much larger programme of work, namely a prehistoric survey of the entire Valley of the Nile. The prehistory of the region is, of course, intimately bound up with its geology; and in successive chapters the authors give us an account of the highly interesting conclusions to which their observations have led them

THE FAIYUM DEPRESSION

concerning the changes that have taken place in the area from Oligocene times onwards. The Oligocene gravels covering the high plateau to the north of the Faiyum are considered to be the deltaic deposits of an ancient river, the Ur-Nil; and since these deposits contain no igneous or metamorphic pebbles, it is inferred that the core of the Red Sea Hills was either not yet uncovered, or else not included in the basin of the ancient river. In the Miocene period the Ur-Nil settled into a definite bed, the land rose, and the river eroded a deep valley (without, however, cutting down to the present bed-rock level in Lower Egypt; this was only reached by further erosion at a much later date). The land then sank, and the valley was converted into a gulf, which gradually became filled with sediments during the Pliocene period; the present gravel-hills of the Nile-Faiyum divide are regarded as representing old valleys which drained eastwards into the Nile in Pliocene times, while the present valleys were then occupied by intervening plateaux. In the transitional period between Pliocene and Pleistocene times a great change took place; the present Nile began to erode its bed in the Pliocene sediments, and to form the dominant feature of the valley, bringing down gravels composed of igneous and metamorphic pebbles derived from the Red Sea Hills and spreading them far and wide over the terraces it had formed in the older sediments. The authors consider that the excavation of the Faiyum depression originated during this period, by the erosive action of a river-system of which no traces now remain but which drained into the Nile, probably through the Hawara channel. Coming now to Pleistocene times, when man seems to have first appeared in the region, Drs Sandford and Arkell discovered that the eastern half of the Nile-Faiyum divide is covered by an old Nile-bed of gravels containing a mixed assemblage of lower palaeolithic implements, ranging from the crudest Chellean to the finest Acheulian types, evidently derived from the breaking down of a succession of terraces. No trace of these older palaeolithic cultures was found in the Hawara channel, nor, with a possible single exception, within the Faiyum depression. Drainage from the Nile into the Faiyum through the Hawara channel appears to have first commenced in middle palaeolithic times, and is evidenced by terraces of gravels derived from the Nile, and containing Mousterian implements, which could be followed at falling levels through the channel and on into the Faiyum, where they are at a height of about 34 metres above sea. Of the late palaeolithic and neolithic periods no traces were found in the Nile Valley; it is inferred that the relics of these periods have either been destroyed or

else lie below the present alluvial level. Silts and gravels with Sebilian implements can, however be traced through the Hawara channel and on into the Faiyum, where they form lake-beaches about 28 metres above sea. Drs Sandford and Arkell agree with Miss Caton-Thompson and Miss Gardner as to the natural origin of the 'Idwa Bank, describing it as a storm-beach, and also as to the palaeolithic age of Sir Hanbury Brown's 22-metre lake, though they consider that it dates from the late rather than the middle division of that period because they found beaches with late palaeolithic implements at somewhat higher levels. In regard to the renewed erosion of the Faiyum depression between palaeolithic and neolithic times, which Miss Caton-Thompson and Miss Gardner ascribe to wind-action during a period of desiccation, Drs Sandford and Arkell consider this erosion to have been accomplished by water-action during a period of heavy rainfall, when the Nile was deepening its valley to its final (unknown) bed-rock depth, and a reversal of flow took place in the Hawara channel, the drainage from the Faiyum once more passing through it to the Nile.

The problem as to whether wind or water was the main agent in the hollowing-out of the Faiyum depression is one of great difficulty—Drs Sandford and Arkell cannot be said to have made out a quite sufficient case for the rejection of the older theory of wind-action. The later erosion, at any rate, cannot have been accomplished by water if the statement of Sir Hanbury Brown that a rock barrier exists across the Hawara channel at a level of about 18 metres above sea is correct; and it seems hardly justifiable to dismiss this statement as a mere tradition without a very careful examination of the rock-exposures on which it was based. The indication of rock at the side and not in the bed of the channel in the cross section of the ravine behind Hawaret-el-Maqta on p. 98 of Sir Hanbury Brown's book proves nothing in regard to the barrier mentioned in his text; for the section may very possibly not have been measured at the place where the rock bed is highest, any more than is obviously the case with the section across the Bahr Yusuf which is figured on the same page. That wide and deep hollows have been excavated by wind-action in the northern part of the Libyan Desert can hardly be doubted; for in the case of the Qattara Depression, which is vastly larger than the Faiyum and nearly three times as deep, recent careful contour-mapping has revealed no trace of an exit channel, nor any indication of local subsidence as an alternative mode of origin.

The time-level graph appended to Miss Caton-Thompson and Miss Gardner's paper aids greatly in grasping the sequence of changes of

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lake-level, and the map in Drs Sandford and Arkell's book enables the boundaries of the geological formations and the courses of the different implement-bearing terraces to be easily followed; the map would have been even more illuminating had more topographical detail been incorporated in it from the survey maps of the region, more especially as regards the relief of the ground. The authors of both publications would have done better to have followed the practice of the Survey of Egypt and the Irrigation Department of expressing all altitudes in metres above or below sea level; it is a little troublesome to have to remember, when one is reading the different accounts, that Miss Caton-Thompson and Miss Gardner's 222-foot lake, Drs Sandford and Arkell's 74-foot lake, and Sir Hanbury Brown's 22-metre lake are all one and the same, and to be compelled to resort to calculation, of however simple a kind, before one can compare the levels given by the authors with others expressed on the official system or figured on the survey maps of the region.

The two publications, each admirably supplementing the other, form a very important and most welcome contribution to the prehistory and to the Pliocene and Pleistocene geology of Egypt, and the authors are all to be heartily congratulated on the valuable accessions to knowledge resulting from their labours. The publication of the results of Drs Sandford and Arkell's further investigations in the Nile Valley and its tributary Wadis will be eagerly looked forward to; and it is to be hoped that Miss Caton-Thompson and Miss Gardner will extend their researches to other depressions of the Libyan Desert. Flint implements are known to exist in the oases of Kharga and Siwa; it would be most interesting to know the age of the prehistoric settlements in these localities, and the routes by which ancient man reached places so remote from the Nile Valley. Another interesting question is as to whether lakes and human settlements may not have existed in prehistoric times in depressions which are now uninhabited by man, such as, for instance, that of Qattara, wherein up to the present no lake deposits have been recognized and only one or two flint implements have been picked up.

A newly-discovered Roman Site in Cumberland

by R. G. COLLINGWOOD

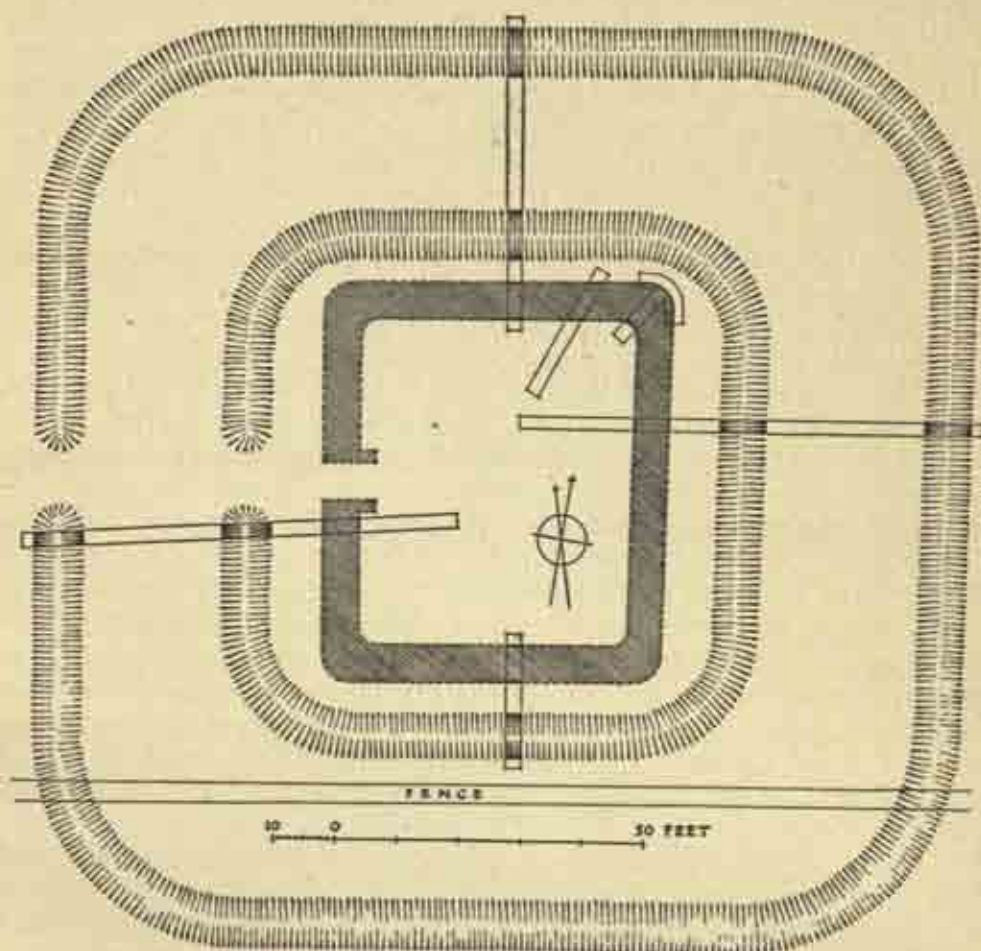
IT has always been part of the programme of *ANTIQUITY* to insist on the value of air-photography as an archaeological method ; and records of discoveries made by its use have often appeared in the pages of this journal. Here is another such record ; the first, I think, in which air-photography has led to the discovery and excavation of an altogether unknown Roman site.

In July 1930, Wing-Commander Insall, v.c., whose discovery of Woodhenge was one of the most spectacular triumphs of archaeological air-photography, photographed from the air a site close to the main road between Penrith and Carlisle. The site, revealed by a crop of wheat, showed as a double square—one square inside another—with rounded corners. The editor of *ANTIQUITY* at once recognized it as Roman, and connected it with the signal-stations of that period ; he sent the photograph to Mr R. E. Porter of Rydal, whose intimate knowledge of the district soon enabled him to identify the site on the ground, with the help of Dr W. Goodchild of Threlkeld. Arrangements were made for digging, and a day's work was done in September by Mr Porter, Dr Goodchild and myself. We employed only two labourers, whose wages were repaid by a grant from the Research Fund of the Cumberland and Westmorland Antiquarian and Archaeological Society ; but thanks to the air-photographs we were able to determine the plan, dimensions, general character, and date of the site without any difficulty. The plan here reproduced is based on a combination of the air-photographs and our trenches. The outer ditch on the south is in a grass field and was not shown by the air-photograph ; its course south of the fence is conjectural. With this exception, the general shape of the site was given by the photographs ; they showed the double square of ditches, the rounded corners, and the entrance on the west ; they also faintly revealed the wall of the fort. It only remained to find the dimensions by trenching, in order to lay down a number of fixed points between which the forms seen in the photographs could be sketched in. This is the method by which the plan has been made.



AIR-PHOTOGRAPH OF ROMAN FORT AT BARROCK FELL, CUMBERLAND
By permission of the Air Council, Crown copyright reserved

ROMAN SITE IN CUMBERLAND



Roman fortlet on Harrock Fell, Cumberland

It was quite impossible to trace the form of the site on the ground after the corn had been cut, and therefore the amount of digging which was saved by possessing the air-photograph must be reckoned a very large percentage of the whole.

The site is half a mile north of Low Hesket village, and about 220 yards east of the seventh milestone south of Carlisle along the Penrith road. This road is Roman, and six miles farther south it passes the fort of Plumptre Wall or Old Penrith, which appears in the Antonine Itinerary as Voreda. The newly-discovered site is therefore about half-way between Old Penrith and Carlisle. It lies a little above the road, on a tiny level shelf in the side of a slope running up eastward to the summit of Barrock Fell. The advantage of placing it here, instead of on the road itself, consists in the fact that it commands a good view. Northwards, in clear weather, Carlisle is in sight and one could exchange signals with it; while, even in thick weather, a single intermediate signal-station on Carleton Hill would keep touch with both places. Southwards one sees the isolated conical peak of Thieveside Hill, which would serve as a link with Old Penrith. By its situation, therefore, one would suppose this site to be one member of a chain of signal-stations along the main road south from Carlisle. It is very probable that many, if not most, main Roman roads were equipped with such things; for, although we have only one well-established instance—the road running down the left bank of the Earn from Strageath—small signal-stations are very difficult things to find; and, without systematic search, especially with the help of the aeroplane and under favourable conditions, it would be rash to deny their existence along other roads as well. Indeed, the search for signal-stations on Roman roads is one of those things that call urgently for attention on the part of field-workers and aerial observers.

But excavation soon showed that the Barrock Fell site was not quite like any known type of signal-station. There are three well-established types in Britain. First, there is the wooden tower with a circular ditch round it, as on the Strageath road. These are probably of the first century A.D. Secondly, there are the stone towers, about 20 feet square, which were built in the first half of the second century. Thirdly, there are the much larger towers, 45 or 50 feet square, surrounded by a curtain-wall and a ditch, belonging to the late fourth century and found on the headlands of the Yorkshire coast. In all these cases the essential thing is the central tower. At Barrock Fell, this tower seems to have been absent. We found a rectangular fortlet,

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65 by 56 feet externally, defended by a stone wall 6 feet thick built in the ordinary Roman fashion, with a core of rubble set in lime mortar and a coursed face of rough quarry stones on either side. This fortlet cannot itself be regarded as a tower; it is too large, and its walls are too thin; and a tower would, on analogy, have been square. Nor does it seem to have contained a tower inside itself. The trenches which we dug in its interior, down to virgin soil, revealed no foundations of any kind, and the nearer they approached to the centre of the fortlet the less they contained in the way of fallen building-stone. All the fallen stone which we found appeared to have come from the fort-wall. Incidentally, it may be remarked that we found no floors, roofing-slates, nails, or other relics of internal barrack-buildings.

The ditches surrounding this fortlet were rather curious. There were two, each about 8 feet wide and 3 deep, and they were about 30 feet apart centre to centre. But they were laid out in a square, not in a rectangle similar to that of the fortlet itself; so that, at its ends, the fort-wall is separated from the ditch by a very narrow berm of $3\frac{1}{2}$ to 4 feet, while at its sides the berm is about 8 feet wide. It is tempting to conjecture that the ditches were originally dug in order to surround a square building, perhaps smaller than the present one, and that the stone fortlet was an afterthought. Such a change of plan is not inconceivable. The first intention may have been to put up a signal-tower on Barrock Fell; on second thoughts, it may have been decided to erect a small fort instead, to act as a half-way house between Carlisle and Old Penrith.

Pottery was found in sufficient quantities to establish the date of the fort. Some was picked up on the surface of the ground; some was found inside the walls, and some in the ditches. Almost all of it was Huntcliff ware, that is, the hard black or brown hand-made ware, containing lumps of calcite, which is characteristic of the late fourth century in the north of England. The few sherds which were not of this ware fitted in reasonably well with the chronology which it suggested. Clearly, the Barrock Fell fortlet belongs to the latest phase of the Roman occupation, its life probably falling altogether in the second half of the fourth century. During this period we know that Count Theodosius, about 370, reorganized the defences of the British frontier; and there is no reason why he should not have put up new signal-stations and wayside forts on the roads leading to the Wall; but the evidence from Barrock Fell does not enable us to say anything more definite about its origin.

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Comparatively little attention has been paid to Romano-British sites of what we are here calling the fortlet type. They are fairly numerous, however, and fall into various classes according to size. One pattern measures about a quarter of an acre inside the defences; examples are found at Bar Hill (first century), Castleshaw (early second century), Maiden Castle in Stainmore (probably the same date), Castle Greg, and Makendon or Chew Green. But this example is much too small to be classed with those. Its internal area is only about one-fifteenth of an acre (53 feet by 44), and I know of nothing in Britain quite comparable. But several very similar fortlets exist along the German *Limes*; examples of just about the same size—18 to 20 metres square externally—are found, for instance, at Seitzenbuche, Robern, Raitenbuch, Petersbuch, and Hirnstetten (*O.R.L., Lieferung* 44, plates 10, 12; *Lieferung* 45, plates 9, 10, 11). These were doubtless used by the *personnel* of the signal-stations along the *Limes*; and in this connexion it may be pointed out that the dimensions of these fortlets correspond closely with those of the milecastles on Hadrian's Wall, which are generally regarded as providing quarters for the men serving the adjacent turrets—which are merely signal-stations—on the Wall. The evidence therefore suggests that fortlets of this very small pattern are normally associated with chains of signal-stations, and are designed to accommodate small detachments of men resting from duty in the neighbouring stations.

Attention has been called to a curious feature of the ditch-system; but another curious thing about it is the wide interval separating the two ditches. In Roman fortifications of the early Empire the ditches are close together and close up to the wall which they defend; the berm is no wider than is demanded by the weight of the wall and the need to prevent it from crushing the lip of the ditch. But in the late Empire we find a wide berm coming into favour, the purpose of which is to keep the enemy's siege-engines at a distance from the wall and to compel assailants to traverse a carefully-prepared field of fire without their help. This wide berm appears even in quite small fortifications of the later period; the Yorkshire coastal signal-stations, for instance, have a berm 30 feet wide. The wide interval between the ditches at Barrock Fell is best understood by bringing it into relation with this new tactical idea.

It would be satisfactory to be able to point out exact parallels to this new fortlet. But I know of only one where the similarity is at all close. This is Old Burrow Camp, on Exmoor, which was excavated

ROMAN SITE IN CUMBERLAND

by Mr H. St. George Gray, F.S.A., in 1912 (*Trans. of the Devonshire Association*, XLIV, 703). Here, as at Barrock Fell, we have a square, round-cornered, Roman site consisting of an outer ditch separated by a wide interval from an inner ditch within which is a small fort. The only differences are, first, that Old Burrow Camp is somewhat larger in all dimensions—the fort roughly 70 by 80 feet internally, and the ditches 80 feet apart centre to centre; secondly, that the inner ditch is double, and thirdly, that the fort is of earth instead of stone. But apart from these minor points the resemblance is very close; and it is interesting to notice that at Old Burrow Camp the outer ditch is 'punic', that is, its counterscarp is vertical, in order to prevent assailants who have crossed it from getting away again, so that they are trapped between the ditches. The date of Old Burrow Camp was not established; but its general features would lead one to place it late in the Roman period, and to explain it as a fortlet of the Barrock Fell class, that is to say, a place intended to house small groups of men serving signal-stations in the neighbourhood.

Notes and News

THE ERECTION OF A DUBU

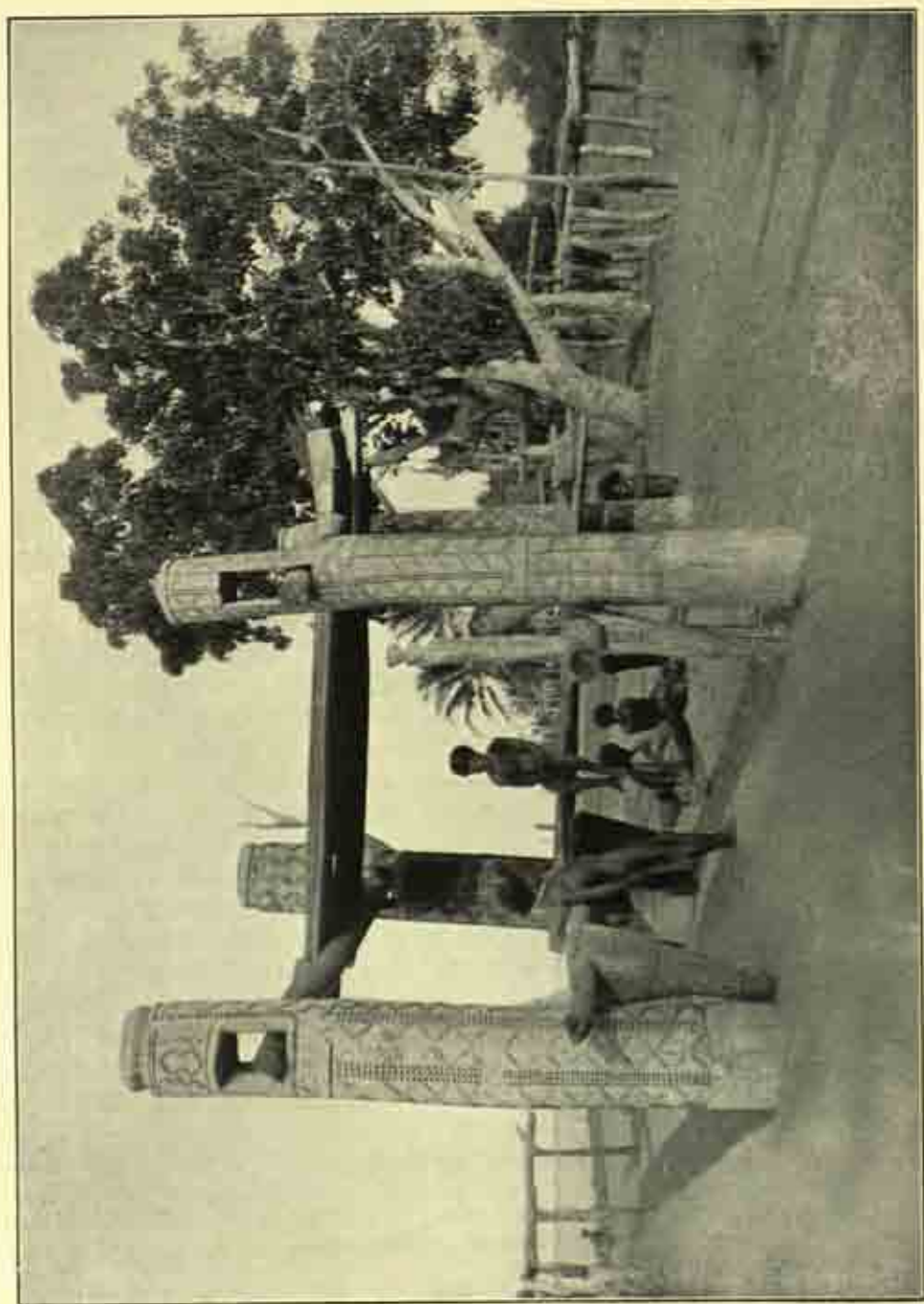
Dr C. G. SELIGMAN writes:—

Owing to absence abroad I have only just seen Mr Hutton's article on Assam megaliths (*ANTIQUITY*, September 1929). This and the recent discoveries in this country of Mr and Mrs Cunningham move me to send an account of the erection of one of the big ceremonial platforms (*dubu*) of the Central District of British New Guinea. The photographs I attempted to take of the actual process failed owing to a leaky camera, but the form and size of these structures is well indicated in the illustrations (plates I-II). For the larger (I), that of a *dubu* in the Motu village of Gaile, I am indebted to my friend Captain F. R. Barton, C.M.G.; the smaller (II) represents I believe one of the older *dubu* of Kapakapa when that village—built in 1898 on piles in the sea—was mainly terrestrial. Those interested in the purpose of the *dubu* and its decorative art will find some account of these matters in a paper contributed to *IPEK* in 1927;* here it will be sufficient to indicate that the ceremonial life of the village centres round the *dubu*, and that the corner posts of the biggest I have seen were over 30 feet high with a diameter of at least two feet. The smaller examples reproduced have posts with a diameter of about two feet, their respective heights being some 10 feet and 15-18 feet respectively.

In 1898, when I witnessed the erection of a new *dubu* (closely resembling the smaller reproduced on plate II) in the Sinaugolo village of Gumori Dobo, the natives of the district were but emerging from the Stone Age so that at Hulaa—a coastal village distant only some 20 miles—I had seen a few weeks before a whole fleet of dug-out canoes being made with stone adzes. Before erecting the Gumori Dobo *dubu* the ground plan had been determined, the holes for the

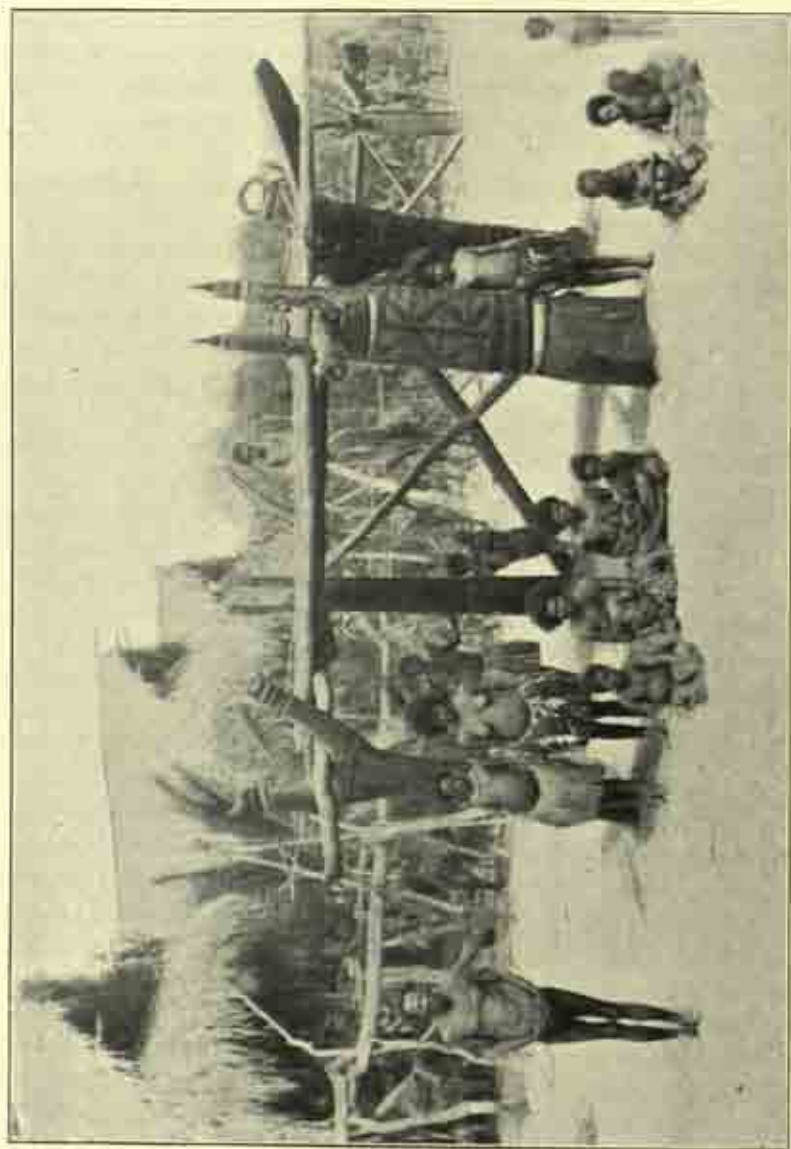
* 'The Dubu and Steeple-houses of the Central District of British New Guinea'. *Jahrbuch für Prähistorische und Ethnographische Kunst*, 1927, I, 177-92. This *Jahrbuch* is generally referred to by its initials as *IPEK*; it is edited by Professor Herbert Kuhn, and published by Klinkhardt and Biermann of Leipzig.—EDITOR.

PLATE I



DUBU IN GAILE VILLAGE, BRITISH NEW GUINEA (PAPUA)

PLATE II



DUBU, PROBABLY BARAKADUBU IN OLD KAPAKAPA VILLAGE, BRITISH NEW GUINEA (PAPUA)

NOTES AND NEWS

corner posts dug and the material assembled, with the result that the dubu, not seriously begun till midday, was finished by 5 o'clock. Such 'jaws' of the corner posts as those alluded to in the account of the erection of this dubu are well seen in the photograph of the one at Kapakapa, while in the Gaile dubu the holes cut in the upper part of the posts would be equally serviceable for rotating these into position. To make what follows intelligible I should add that the carved posts and timbers of an old dubu were often used in constructing one afresh in a new village.

The first stage of the building of the dubu was to pull each corner post to the hole already prepared for it.

Its jawed or excavated end was then lifted by a crowd of workers who pushed it along until its opposite uncarved end slid across the hole and touched its far side, being received on a flat piece of wood or two rounded poles held by a man squatting at the edge of the hole. As soon as the post struck this the men holding its carved end raised it more and more, the fulcrum for the movement of the whole post being the near edge of the circumference of the hole. As the post was elevated the lifting power of the crowd was necessarily applied nearer the fulcrum, but in spite of the mechanical disadvantage this entailed the post was speedily raised. It was rotated into position on the capstan principle, a stout pole notched near one end being placed within the jaws at the top of the post so that the notch caught against the inner surface of one jaw when force was applied at the opposite end of the lever thus formed. Earth was then packed with hand and digging sticks into the space around the post, and firmly trampled down. The other four posts were got into position in the same manner, the height of each being allowed for by varying the depth of the hole dug. The correct depth was ascertained by laying a sapling alongside the post, then marking it at the length of the post and holding it upright in the hole while a cord passed between the jaws of the post already erected was carried horizontally across the top of the sapling. In spite of these precautions one post when placed in position was found to be a few inches higher than the other, and it was quickly taken out of the hole and part of its base removed while the hole was deepened. After the corner posts had been orientated the horizontal poles which would presently carry the boards forming the upper platform were got into position. These measured about 27 and 30 feet respectively; the longer of the two was not new but had been brought from the old village of Kwali-marupu earlier in the day, where it was taken from the old dubu.

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Inclined planes were formed leading halfway up the main posts by lashing to these a number of stout saplings. On these men stood, others supported by comrades clung to the post, and when the cross-piece was lifted received its end and guided it between the jaws of the corner post. The near end was then lifted up until it was in the same horizontal line at the base of the jaws of the posts that would receive it, when it was pushed along and its end guided into the jaws of the second post by men standing on inclined saplings lashed to that post.

The cross-piece was lifted to the horizontal, and maintained in that position while being moved forward between the jaws of the corner post by a special device. Two stout poles were taken and laid across each other so that an x-shaped figure was formed, with arms of very unequal length, the two lower arms being perhaps 10 feet long and the upper arms scarcely a foot. The poles were then bound together where they crossed each other, the lashing being contrived to allow a certain amount of play; so producing a very long handled short bladed pair of tongs. A couple of men took hold of each of the longer arms, and as the horizontal pole was raised from the ground to shoulder height it was allowed to rest in the crutch formed by the short arms of the instrument, and lifted into the horizontal position by bringing the long arms into a plane at right angles to the horizontal piece they were supporting.

This all happened smoothly enough in the case of a new cross-piece, but it was found that the cross-piece from the old dubu was too thick to lie between the jaws of the new corner posts, which were accordingly further excavated. Finally, boards that had been used to form the floor of a small temporary platform which stood in the village street were brought up and put across the two horizontals to form the top platform of the new dubu.

It will be seen that no bank of earth was required at any stage of the building, though I think that a temporary scaffolding may have been used in the erection of posts well over 20 feet in some of the older dubu.

A SAXON FISH-POND NEAR OXFORD

In the bounds of land near Oxford reputed to date from the tenth century a certain bound-mark is mentioned under the name of *stirigan* or *styrian pol*. *Pol* of course means pool or pond; and the dictionary translates *styria* by sturgeon, derived through the French *esturgeon* from the same Teutonic source. It adds, however, that

NOTES AND NEWS

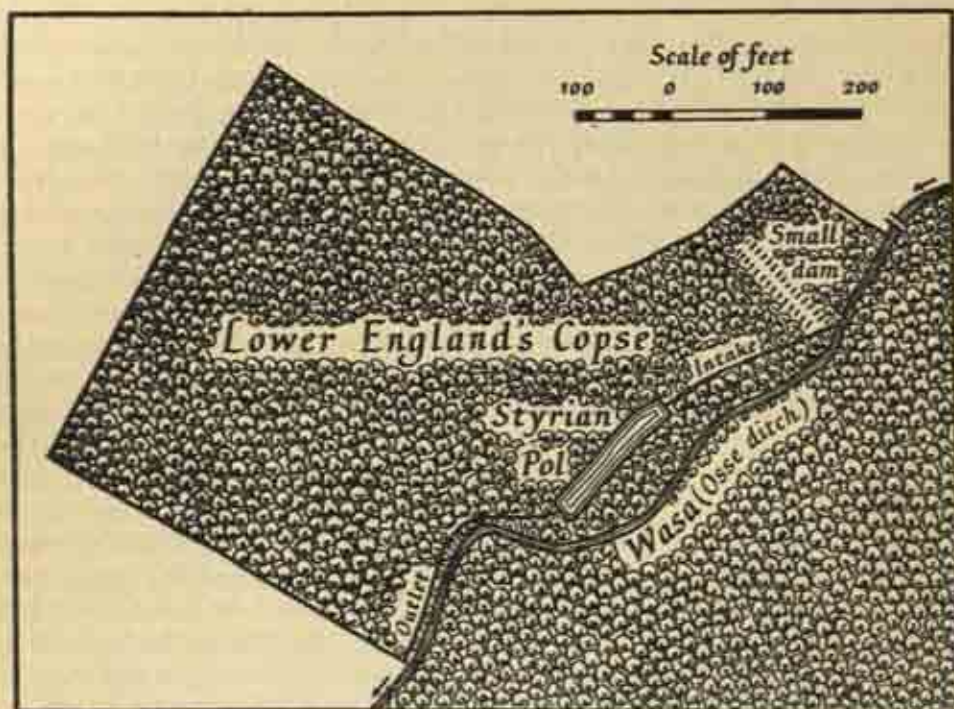
styria 'is used as the equivalent of several Latin names of fishes', such as *cragacus*, *porcopiscis*, *rombus*. We cannot enter into a discussion of such words here, though we should like to know exactly what *styria* means. For our present purpose the words may be translated simply 'fish-pond'.

The expression *styrian pol* occurs twice; in the bounds of Besselsleigh, A.D. 959 (Earmundesleah, Birch, *Cart. Sax.* III, no. 1047) and in those of Eaton, A.D. 968 ('aet Cumenorán', Birch, *C.S.* III, no. 1222). These charters have been investigated by Dr G. B. Grundy whose notes on them are published in *Berks, Bucks and Oxon Arch. Journ.* vol. XXVII. Dr Grundy locates *styrian pol* 'close to the Cumnor road, where the old Eaton boundary crossed it about $\frac{1}{4}$ mile north of the north edge of Appleton village' (Berks, 5 SE); that is to say, on the road from Appleton to Cumnor and Oxford, between Hengrove Wood on the northwest, and Lower England's Copse on the southeast. (This road was made after 1761; it is not shown on Rocque's map). It is, to say the least, most unlikely that a fish-pond would be found on a watershed. Moreover, I have the impression that the *oe pol* is generally applied to ponds connected with or adjacent to running water. However this may be, the site of *styrian pol* must be, as Dr Grundy admits, 'somewhere close to what was in Anglo-Saxon times the meeting-place of the boundaries of Appleton, Eaton and Besselsleigh'. Dr Grundy regards it as impossible to determine the course of the boundary between Appleton and Eaton; but I think he is unduly pessimistic. It must have run about midway between the two villages, and can hardly have hit the Appleton brook more than, say, a quarter of a mile from Lower England's Copse. Personally I think there can be little doubt that it followed a long line of hedge which for the last part of its course forms the southern boundary of Lower England's Copse. The modern parish of Besselsleigh nowhere extends beyond (NW of) the Appleton brook; and the common meeting-place of the aforesaid three parishes must surely therefore be looked for on or within a few yards of this stream.

When doing some field-work in this district last spring, I was puzzling out these bounds, and when studying the 6-inch map (Berks, 5 SE) I noticed, in Lower England's Copse, a narrow rectangular piece of water indicated, lying roughly parallel to the stream, in a bend. There seemed to be no existing *raison d'être* for the pond, yet it was obviously artificial. It occurred to me that this might be *styrian pol*; and so it proved to be. I visited it with a friend, and we found that

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it was an obvious fish-pond, having every appearance of great antiquity. It is 160 feet long and 30 wide. At the upper end is a small intake or feeder, to supply it with water from the stream; off at right angles to this feeder, towards the higher ground, runs a small bank or miniature dam. At the other end there is an outlet from the pond to let the water run back into the stream. On the side of the pond away from the stream is a bank, consisting doubtless of the excavated material.



Earthworks of proven post-Roman, pre-Conquest age are so rare that they are worth recording. Surely we have here the humble ancestor of those elaborate fish-ponds that occur near all important medieval establishments? There are many in this district. Between *styrian pol* and Besselsleigh Manor there are several, and also between the Manor and Dry Sandford.

The stream itself is of interest from the fact, discovered by Dr Grundy, that it was originally called *Wasa*. This word is preserved as Osse ditch on the tithe map. That the *Wasa* of Birch nos. 777 and

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1047 (Appleton) and of 977 and 1221 (Fyfield, Berks) is identical with the *Wase* or *Wæse* of 1222 (Eaton) admits of no doubt, nor can Dr Grundy's identification be impugned. It is as certain as anything can be that *Wasa* and *Wæse* both refer to the Appleton stream. I have studied the charters independently and been over much of the ground with a 6-inch map; and in this matter I entirely agree with Dr Grundy,* and regret the footnote on p. 437 of Professor Ekwall's 'English River-names'.
O.G.S.C.

BABYLON OF EGYPT

Mr E. H. SAWYER writes:—

Concerning the mosaic discovered in the church of St. John the Baptist at Jerash, Transjordan (described in *ANTIQUITY*, December 1929), is not this probably a representation of the still existing Roman fortress of Babylon in Egypt, now known as Old Cairo? It lies on the east bank of the Nile, where the one great route from Asia ended, as shown by the Itinerary of Antoninus, and it faces the northern end of Memphis on the opposite bank. The site is of great antiquity. Traditionally it was founded and named by Babylonian prisoners of Rameses II and first fortified by Nebuchadnezzar. In hieroglyphics it was 'Per-Hapi-n-On', that is, 'House-of-Apis-of-On'. Roman and Crusader called it 'Babylon' and maybe the name gave rise to the above tradition. When the Romans conquered Egypt in 30 B.C., Augustus placed one of his three legions at Babylon, then the most important town after Alexandria and the key to the south and to Memphis, which was already partly in ruins and is not known ever to have been fortified. In Roman times there was a bridge of boats here across the island of Roda to Memphis, and Babylon formed the bridge-head. The present great fortress was built by Trajan about A.D. 100.

Babylon, possibly owing to its Asiatic origin, was the home of the Jews living in Egypt. In it Joseph and Mary with the infant Jesus passed their period of exile, the site of their dwelling being traditionally marked by the crypt of the church of Abu Serga. To it came Mark and Peter in A.D. 45; here they founded the Church of Egypt, and here the latter wrote his 'First Epistle General', and the former, according to Coptic tradition, most of his Gospel. Together

*Dr Grundy has re-affirmed his views in a review of Professor Ekwall's book, published in the *Geographical Journal*, 1929, LXXIII, 469.

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with Alexandria it became the centre of Christianity and many churches were built there. But while the sea-port was forcibly converted to Islam, Babylon has remained to this day entirely Christian. On the contrary, Memphis with its temples continued until very late times to be the home of the ancient religion. Returning to our contention, a Christian mosaic-worker at Jerash would clearly remember two places in Egypt; the patriarchal city of Alexandria and the fortress of Babylon.

If the mosaic be compared with the accompanying plan, it will be seen that it is just such a representation as might be given by a worker from his memories of a year or two back. The two watergates are in the right positions, the number and the places of the forward bastions and towers are correct; on the other hand the bastions appear to be shown as square instead of half rounded, the towers are not given sufficient prominence, and the northward part of the fortress is entirely omitted. But the whole of the northeast quadrilateral seems to have been a later addition to the building, which would explain the two angles that occur in the ground-plan.

In the days of Trajan the fortress was most imposing, with walls 50 feet high, bastions, towers and gateway 70 feet; the south and west walls were washed by the Nile, which flowed through a moat on the land sides. Today the surrounding soil has risen some 30 feet—over a foot and a half per century—and the river lies a quarter of a mile to the west. The walls are built in the usual Roman manner; five courses of limestone 3 feet in height alternating with three burnt brick courses of 1 foot; at the base they are 8 feet thick, changing near the top to 5 feet, the offset being on the inside.

The Moslem conquerors in A.D. 640 besieged Babylon in vain for seven months, and it was only by treachery that the last Imperial troops were expelled. In A.D. 1168 it was gutted by fire to prevent its falling into the hands of a crusading army. After Roman times many reconstructions were made. When the Nile receded a postern was cut in the northwest wall 12 feet below the present ground level. Steps now lead down to it and until five years ago it was the only entrance to the interior streets. As the ground rose, the walls were heightened from 12 feet to 20 feet in various parts. On the roof of the south gate was built 'El Muallaka', the Hanging Church, cathedral of a bishop for many centuries, the outer wall now rising another 30 feet of poor brickwork. Between the two western towers, where presumably the bridge-gate stood, there have been only heaps of rubble for the last

PLATE III

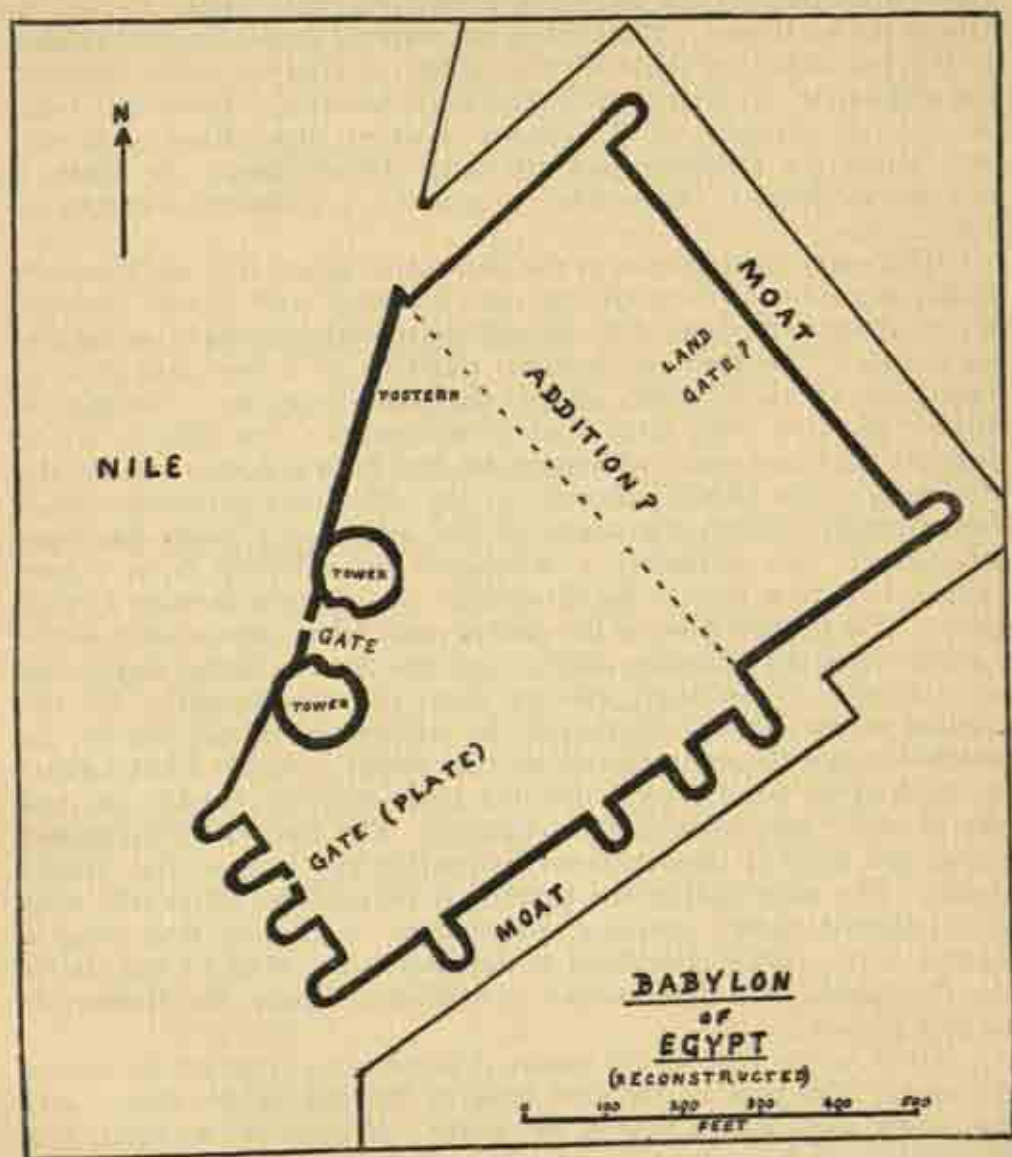


SOUTHERN GATE OF ROMAN FORTRESS OF BABYLON IN EGYPT

Pl. E. H. Sawyef

facing p. 484

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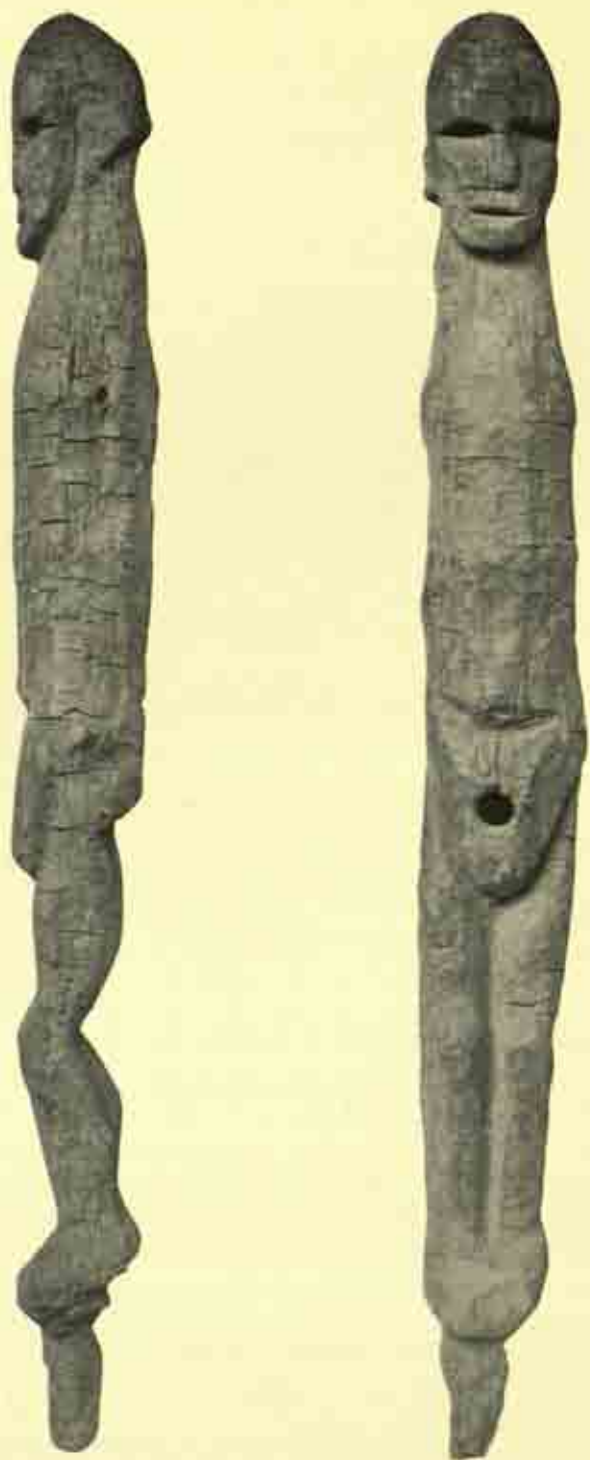
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fifty years, but everything points to the existence of a former entrance. There is no trace of the land-gate, which must have faced the road to Asia on the northeast. The fortress has suffered greatly from alterations in the last hundred years of tranquillity, a number of the bastions and sections of the outer wall having been removed. Every few years sees further changes; at the present moment large pieces of Roman wall inside the southern gate are being pulled down. It seems a pity that so little is being done to preserve a monument unique in Egypt.

The south gate, shown in the illustration (plate III), was formerly buried to the top of the arch, but was excavated, with its two bastions, in 1901 down to the level of the subsoil water, which shows at the bottom left corner. The gate and bastions stand on an 8 foot base of large slabs, one of which shows ancient Egyptian sculpture; the gate is entirely of stone, with some modern refacement; the bastions are of alternate brick and stone, with much modern brick support. Under the projecting corner of the pediment on the right there is carved a small Roman eagle; above the centre of the pediment a tablet has been defaced. It was obviously a water-gate for shipping from Upper Egypt, the lowest part of the illustration on the right forming a small quay. The interior floor of the gate is some 6 feet above water-level; a stone threshold 15 inches higher than this floor indicates that it was not intended for vehicles, nor are there any wheel-marks. Of the original wooden doors, opening in the middle and closing against the threshold, only the stone sockets are now visible. About 8 feet further inside the gate was the portcullis in a stone archway, the left grooved pier of which may be seen in the picture. The three other buttresses visible are modern constructions supporting the floor of the church above. The inner hall of the gateway is adorned on either side with round-topped niches intended for statues. Under its floor runs a Roman drain, partly uncovered in the illustration, with its exit under the threshold; the present-day ground-level inside the fortress is 15 feet higher.

There is one very simple means of discovering whether the mosaic represents Memphis on the west bank or Babylon on the east; and that is the direction of flow of the water. If from left to right, it is Memphis; if from right to left, it is Babylon. In the illustration published in ANTIQUITY it seems from the zigzags in the foreground that the river is running towards the left; a close inspection of the mosaic itself should answer the question.

PLATE IV



WOODEN IMAGE FROM A BOG AT KALAGHAN, SHERCOCK, IRELAND (about mid-sixth)

P.A. Arvill

facing p. 487

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A WOODEN IDOL FROM IRELAND

Dr ADOLF MAHR, Keeper of Irish Antiquities in the National Museum, Dublin, writes:—

The wooden idol, illustrated on plate IV, is now in the National Museum of Ireland, Dublin. It was found in a bog at Ralaghan, parish of Shercock, co. Cavan; the Museum is indebted to the owner of the bog, Mr Halpin, to Mr James Traynor of Bailieborough, co. Cavan, and to Mr Peter F. Connolly, v.s., of Andover, Hants., for the preservation of this interesting object, the first of its kind hitherto recorded in Ireland.

The figure was found, while cutting turf, under 3 to 4 feet of peat. The bog has been reclaimed since, but there is good reason to hope that a palaeo-botanical examination of the site will still be possible. It is made of yew* (*Taxus baccata*), its height being 3 feet 8½ inches (113.5 cm.).

There were no arms though the body is rather carefully carved. The hole in the centre, obviously intended for the insertion of a male organ, is drilled and the whole region is somewhat accentuated.

The projection at the base was inserted, I am told, into a socket cut in a square block-shaped pedestal, about a square foot in area; it is now lost. The figure lay on its face. Nothing else had been found previously or since.

A few figures of more or less similar workmanship are known from different European countries (including Great Britain, Denmark, and Germany). The female idol from Ballachulish is the nearest British parallel (*Proc. Soc. Ant. Scot.* 1880-81, xv, 158). A very striking resemblance is offered by the male idol from Alt-Friesack in Brandenburg (Albrecht, *Mainzer Zeitschrift*, 1928, XXIII, 47). This is supposed to be Slavonic, but it does not follow that other figures, even if that be so, must necessarily also be of similar late date.

ABINGDON

The picturesque old town of Abingdon, near Oxford, is a typical English provincial one of the best kind—such as before the invention of motors was called 'sleepy'. It bears an aspect of immemorial antiquity, befitting a place that was established several centuries before

* The wood was kindly examined by Dr P. O'Connor, Keeper of the Natural History Division of the National Museum of Ireland.

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Oxford was heard of. It owes its fame chiefly to the abbey, barely one vestige of which now survives.

It is not generally known that the name Abingdon is not original but was transferred to it, with the abbey, at the end of the 7th century. Our evidence is mostly late, but it is consistent, and it is supported by a striking and hitherto misunderstood phrase in a charter of the reputed date of 955.¹ The bounds are those of the parish of Abingdon itself (then much larger than now); they profess to record the extent of Ceadwalla's grant of 689 or thereabouts; and they mention a certain 'abbendune' as lying near the 'head of bromcumbe', and traversed by a 'port strete'. This site is easy to locate; the former name survives in Brumcombe Copse and House, and the 'down' can only have been the high ground followed by the modern road from Foxcombe Hill towards Oxford. This then was the tract of down called 'Abingdon'—a narrow upland ridge with, probably, few signs of human habitation.

The site thus identified agrees closely with the position assigned to the 'mons' of Abendune 'qui juxta Baiwrthe situs est juxta Pinnesgrave'; or between Bayworth and Pinsgrove (*Ab. Chron.* II, 268). Bayworth is the village in the hollow between Foxcombe Hill and Bagley Woods; and Pinsgrove was the name of a copse south of Chilswell.² Between the two runs the aforesaid ridge.

It was here that Hean began to build a monastery in 675. He had been given a large grant of land to support his new foundation, but the building itself made little progress. Possibly it was the land that Hean wanted, and the religious foundation merely a means to attain that end. Bede speaks of laymen who 'under the pretence of founding monasteries acquire for themselves territories in which they may have free scope for their lust', (Letter to Bishop Egbert of York). In any case Hean had not even become a monk in 695, twenty years after Cissa had granted him the land.

There is however a slight uncertainty about the *exact* site where

¹ Published in the *Abingdon Chronicle* (Rolls Series, 1858) I, 124, and in Birch, *Cart. Sax.* III, 68. Dr Grundy (*Berks, Bucks & Oxon Arch. Journ.*, 1922, XXVII, 98, 99), puzzled by finding an 'abbendune' so far from the town of that name, attempts to emend the text, but he has missed the point. There is really no difficulty to be overcome.

² Pinsgrove is not marked on the Ordnance Map; but Hearne refers to a 'town' of that name as having been situated $\frac{1}{4}$ of a mile SE of Chilswell, and he also speaks of Pinsgrove Coppice. *Lib. Nig. Scacc.*, 1774, II, 565.

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Hean first began to build his upland monastery, just as there is about the exact date of its transference to the banks of the Thames. One account³ says it was 'founded on the spot where now is a monastic cell' (*cellarium monachorum*); another that it 'lay on a plateau with an extensive view, just beyond the village of Sunningwell'.⁴ The former account gives precise details of the buildings which, if reliable, prove that a good deal of work *was* carried out on the hill, before the transference. The site associated⁵ with these descriptions is on Chandlings Farm, where in a grass field numerous banks and old foundations are still to be seen. What we now see is doubtless of much later date; but excavation might well reveal the foundations of Hean's structure.

The place where Abingdon now stands was formerly called Seovechesham—'the settlement of Seofeca'—a Saxon personal name also preserved in Seacourt near Botley (OE Seofecan wyrth). It is described as a 'famous city, pleasant of aspect, full of wealth, surrounded by fertile fields and verdant meads'. It is also said to have been an important place of religious gatherings 'a primis Britonum temporibus'; but we must remember that our authority is a writer of nearly a thousand years later. There is however archaeological evidence of a Romano-British settlement at Barton close outside the modern farm; and there is evidence from air-photography of a very thick prehistoric inhabitation of the immediate neighbourhood. People have lived continuously on the gravel flats beside the Thames here for more than 4000 years. Some echo of its earlier history may have trickled down to the monkish chronicler by word of mouth or in writings now perished.

When the monastery was transferred the name went with it, superseding that of Seovechesham. The lowlying position seems most unsuitably described by the suffix -dune (in Abingdon), and this has always been a difficulty. It is now removed. O.G.S.C.

EXCAVATIONS IN MESOPOTAMIA*

The annual exhibition of objects found at Ur was held last summer at the British Museum. It was chiefly remarkable for a magnificent

³ *Ab. Chron.* II, 272.

⁴ *Ab. Chron.* I, 3. This description would also suit the former site.

⁵ By G. W. B. Huntingford in *Berks, Bucks & Oxon Arch. Journ.*, 1925, XXIX, 140.

* We much regret that we were just too late to see Mr Guy Brunton's exhibition, and therefore cannot refer to it in this note. Reference is made to all three exhibitions in the current number of the *British Museum Quarterly* (vol. V, no. 2, pp. 73-6).

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plan of the whole site as it was 'in the time of Abraham, 2100-1900 B.C., compiled by A. S. Whitburn and C. L. Woolley'.† To the north and west were harbours and on the west the river Euphrates—a wonderful contrast to its present arid desolation. The objects from the lowest strata are, of course, of the utmost interest, and include a group of pots of a wholly new type. There is indeed enough stratified pottery at Ur to justify the employment of a student who could devote his whole time to it. There is what seems at a casual glance an almost bewildering range of types; and some doubtless persisted throughout long stretches of time. Nevertheless no single type can have remained absolutely unchanged for long, unless the pot-makers of Sumeria differed from those of every other country in the world, which we cannot believe. The chronology of prehistoric Palestine and of Roman Britain is to a large extent based upon a close study of pot-fabrics; the early chronology of Mesopotamia will never emerge from the uncertainties in which it is still involved until the humble potsherds are seriously and methodically studied. To do so adequately on a site like Ur is a whole-time job for at least one man; nor could final results be obtained from a single season's work. But such results as might be obtained eventually would prove of immense permanent value to all future excavators and students.

Amongst the minor exhibits we noticed a *notched* clay sickle, evidently modelled on the other kind set with notched flints (see ANTIQUITY, IV, 179-86). This example, too, proves beyond any doubt, if proof were still needed, that the clay sickles were actually used as such. Amongst objects described as of the 'late El Obeid period' (i.e. belonging to the fourth millennium B.C.) are some clay sling-bolts and a clay spoon. The lady with the fantastic gold head-dress occupied her usual position, and there was the usual wealth of *objets-de-luxe* that we have come to expect each year. In passing we might mention the fact that a non-archaeological friend of ours who visited the exhibition left it with the impression that the aforesaid lady's face and hair formed part of the original find. We think it should be made perfectly clear that they are merely a conjectural restoration.

In the gallery leading to the Ur exhibition were displayed some of the finds from Nineveh, where Dr Campbell Thompson is conducting

† One of the main results achieved last season was the determination of the course of the city walls. This and other features of the exhibition are described in the excellent guide prepared. (*Antiquities of Ur*, by C. L. Woolley). Mr Woolley's full report is printed in *Antiquary's Journal*, October 1930.

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excavations with the financial backing of Sir Charles Hyde and others. There are some sherds of painted prehistoric pottery (which would have been seen to better advantage if they had been washed first); they were described as 'found at a depth of 12 to 18 feet below the surface and beneath the level of the (presumed) Temple of Ishtar, founded before 2000 B.C.'. There were some flint and obsidian implements, and many sickle-flints (though not so described) could be seen amongst them. These too were covered with dirt, so that the glossy patina caused by use could only just be discerned. This would not occur in an exhibition of finds from excavations carried out in this country.

There was displayed a re-photograph of a mosaic air-photograph of Nineveh taken from a height of 6000 feet by the Royal Air Force (in December 1929). Being a re-photograph and not an original the fine detail is for the most part invisible or blurred. The original negatives seem however to have been quite good. We hope that in this instance the British Museum has taken advantage of the arrangement concluded three years ago on its behalf by the writer. By this arrangement the Air Council agreed to hand over to the Trustees any negatives of ancient sites which were no longer required for service purposes. They also agreed to allow ancient sites within reasonable distance of aerodromes or of regular flying-routes to be photographed. As a result of this mission the British Museum now contains the nucleus of a national collection of air-photographs of the Middle East. It rests with the Trustees to develop this collection along lines already prepared.

ZIMBABWE

A correspondent writes:—

'Miss Caton-Thompson's article in *ANTIQUITY*, III, 12, ends on a note of finality which I am sure she did not wish to convey. Having demonstrated the medieval age of the buildings, and having labelled them as 'typically African Bantu', the questions: Who built these 500 odd structures, and why did the builders choose the Zimbabwe site for the biggest and strongest? may be said to be re-opened. It is probable that no one, with the possible exception of Professor Frobenius, will dispute the period, but what exactly does Miss Caton-Thompson mean by 'typically African Bantu' when speaking of 'every detail in the haphazard building'? These buildings, of

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strikingly similar characteristics which fall (apparently) as regards time into a very short period, are confined to a small area of a large continent. It may be said here and now that none of these characteristics are found today in Bantu building use. In making this statement I have the advantage of having conversed with both Miss Caton-Thompson and Professor Frobenius; of having examined some of the ruins, including Zimbabwe and Khami; of having personal knowledge of several Bantu tribes; and of being supported by scores of Europeans who have lived in the closest contact with the African native from the Atlas to the Cape.

'Zimbabwe must be tackled afresh and the Monomotapa question re-opened, through the medium of Portuguese evidence. Now Portuguese chroniclers assert that the 'emperor' (of the Monomotapa) himself was a Mocaranga. A Dominican writing in the middle of the 17th century says that this 'powerful king' was a black man ('com as carnes pretas?'). A reasonable supposition is that some great chief began a style of building which was carried on by his successors for a few generations, and that Zimbabwe was a capital and a gold depôt. The ancient mines lie thickly around, and subsidiary depôts down to Sofala have been definitely traced. It should be mentioned that an unknown but certainly very large quantity of gold sheets and beads were removed from Zimbabwe by the early adventurers. May we invite some Portuguese correspondent to re-open the question from the libraries of Lisbon?'

We have submitted the above to Miss CATON-THOMPSON who writes:—

'In a short article verbal forms of dogmatism have to be used to some extent from literary necessity, since space forbids the qualifications introduced into a final publication. One would therefore plead that the case for the comparatively recent age and African origin of Zimbabwe and its allied buildings, should not be judged until full publication puts the reader in a position to assess the merits of the complete evidence. This evidence will appear in my book: *The Zimbabwe Culture: Ruins and Reactions* (Clarendon Press) which will appear this year, illustrated by 73 plates and 26 text-figures. The evidence for my claim that the Zimbabwe buildings are "typically African Bantu" is there given in detail, with illustrations. A limit has to be imposed upon the scope of archaeological inquiry; the





EARTHWORKS BETWEEN ABINGTON AND ROBERTON, LANARKSHIRE, SCOTLAND

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significance of the Zimbabwe culture needs now to be explored from the literary records, Arab and Portuguese, and from the angles of cultural and physical anthropology'.

THE UNKNOWN MEGALITH

Within a few hours of the publication of the September number of *ANTIQUITY* the 'unknown megalithic monument' illustrated on the plate facing p. 364 was identified by two of our readers, and a third has since written with the same effect. We heard first from Major N. V. L. Rybot, F.S.A., hon. secretary of the Société Jersiaise, who informed us that it was the dolmen which formerly stood on the Mont de la Ville at St. Helier, Jersey, and that it was removed in 1788 to Park Place, Henley-on-Thames, Oxfordshire, the seat of Marshal Seymour Conway, then Governor of Jersey. It appears that the authorities of the island wished to find a place for the monument in order to build the Regent Fort on the site, and so at considerable labour and cost they made a present of it to Marshall Conway. While gratifying him they destroyed for ever the archaeological significance of the megalith.

The earliest mention of the monument, published in 1734, suggests that it had by then been partially uncovered but it was not until 1785, when the site was levelled for the purpose of a drill ground, that it was completely known. As the result of this a communication was made to the Society of Antiquaries in 1787 and printed in *Archaeologia*, VIII, 384-5, with an illustration and plan, and a letter from Governor Conway himself to the Earl of Leicester, President of the Society, is at pp. 386-8. These and other printed references to the monument were collated by Mr Reginald A. Smith in a very informative paper read to the Society of Antiquaries 20 March 1919 (*Proceedings*, series 2, 1918-19, XXXI, 133-44) in which he made necessary corrections in details and discussed the question of the vaulting of the dolmen and its date and purpose.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

On the opposite plate we reproduce an air-photograph taken recently by Wing-Commander Insall, v.c. The site is not marked on the Ordnance Map and appears to consist of a central keep approached by an entrance between converging banks. The plan is unusual if not unique. The site lies between Abington and Robertson in Lanarkshire (43 sw), about a furlong west of the Clyde and beside the main road connecting Glasgow and England by Gretna Green and Carlisle.



Excavations at Oliver's Battery, near Winchester, have been rewarded by the discovery of a magnificent bronze bowl with enamelled escutcheons. It was buried with the skeleton of a warrior of the Saxon period (about the 6th century). The grave was in the rampart of a rectangular earthwork. For these details we are indebted to Mr W. J. Andrew, F.S.A., who has been supervising the work on behalf of the Hampshire Field Club, and who is to be congratulated on a find of exceptional interest.



Dr Mortimer Wheeler, Keeper of the London Museum (Lancaster House, St. James's, s.w.) is giving courses for students as follows:—
1. Outlines of British Archaeology from the earliest times to A.D. 100.
2. Roman Britain. 3. Saxon and Norman Britain (A.D. 400-1200).
4. Archaeological field-work in Britain. These lectures are given under the auspices of the University of London, at which Dr Wheeler is Hon. Lecturer in British Archaeology.



It will be news to many that Canada has a Historic Sites and Monuments Board. It was founded in 1919 and is administered by the National Parks Service, under the control of the Department of the Interior. No less than 150 sites have been marked by the erection of

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suitable memorials. Among them are a number of relatively modern French or English forts and a unique example of a double-walled aboriginal fort at Southwold near St. Thomas, Ontario. It is the intention of the Department ultimately to mark throughout Canada all those sites that have a distinct bearing on the history of the Dominion. (*Natural Resources, Canada*, published by the Department of the Interior, Ottawa, August 1930, vol. IX, no. 8, p. 2).



A correspondent sends us an account of a cemetery awaiting excavation in Northern Spain. It is practically undisturbed and lies on the high plateau of Old Castile, 8 miles north of the city of Burgos. The owner, Don Carlos Levison of Bilbao, and his son Don Roman, are ready to place all information at the disposal of a properly qualified excavator and to facilitate excavation.



Excavation at the hill-forts of Hembury (Devon) and the Trundle (Sussex) have revealed extremely interesting structural features, particularly in connexion with the entrances.



Excavations have been carried out in the camp of Dinas, near Llanidloes, Montgomery, which was suspected of being an earthwork of neolithic type. From a press report we gather that the results are inconclusive, owing to the tiresome habit of some of the prehistoric Welsh of not using pottery. (*Montgomeryshire Express*, 22 July)



Human remains and implements have been discovered embedded in sandstone at Tartanga on the Lower Murray river, South Australia. (*Yorkshire Observer*, 19 July).



The Daily Herald (11 August) rejoices, quite properly, in the destruction of the last hangar on the Stonehenge aerodrome and looks forward to the restoration of this part of the plain 'to the austere guardianship of Mother Nature'. *The Evening Standard* (11 August) has no illusions about Mother Nature, who 'is not the gentle old dodderer which townfolk so often imagine her to be. Unless the authorities see to it that there are sheep or other correctives on Salisbury Plain, old Mother Nature will promptly set up thickets of

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thorn and juniper, and Stonehenge will ultimately become as difficult of approach as the Maya Temples'. Those who are unconvinced should inspect some of the adjacent War Office land and see what Mother Nature's rabbits can accomplish when freed from the corrective of foxes.



A beaker has been found in a round barrow on Ivy Lodge farm, near Woodchester, Gloucestershire. It is the first complete vessel of its kind to be found in the Cotswolds, and it is to be hoped that it will find a safe home in a public Museum. The barrow in which it was discovered was one of the many placed upon the map during the last Ordnance Survey revision. (*The Times*, 29 August, p. 8).



Two articles by Mr S. E. Winbolt on the Roman coastguard forts in Yorkshire were printed in *The Times*, 23 August, p. 11 and 25 August, p. 13.



Roman glassware in considerable quantity has been found at Cologne, which was one of the principal centres for the manufacture of glass in the Roman Empire. Among the vessels are many with figurative decoration. (*The Times*, 22 August, p. 9).



Dr Hermann Junker, Director of the Austrian excavations on the Delta of the Nile at Merimda, between Wardan and Salamme, reports on a Neolithic settlement there. (*The Times*, 28 July, p. 11).



A report of Mrs M. E. Cunningham's paper describing the site of 'The Sanctuary', on Overton Hill, Wilts, which was read before the Wilts Archaeological Society, was published in *The Times*, 1 August, p. 11. We referred to the excavation in the September number of *ANTIQUITY*, p. 368.



In the recently issued yearbook of the Carnegie Institution of Washington for 1929, Dr Sylvanus G. Morley publishes his annual review of the activities of the Institution in excavation among the Maya ruins of Central America (summarized briefly in *Nature*, 27 September).

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A warship 500 years old has been found in the Riddarholm Canal in the heart of Stockholm. (*Hampshire Telegraph*, 15 August).



Professor H. Otley Beyer, head of the Anthropological Department of the University of the Philippines, has collected important archaeological material during the last four years. In 1926 the construction of a dam on the Novaliches river brought to light a prehistoric village and cemetery which within the space of four months yielded some eighteen thousand specimens. During the next three years extended reconnaissance and excavation in the neighbourhood, mostly within the province of Rizal, brought to light nearly a hundred sites and an enormous amount of material, running into scores of thousands of objects.

Before these discoveries, the archaeology of the Philippines earlier than, say, a thousand years ago was a blank. Almost at a stroke it has been carried back at least to the early neolithic and possibly earlier. Although the material has still to be worked out in detail, certain broad conclusions are possible. These are summarized, and their bearing upon the prehistory of Eastern Asia indicated, by Prof. Roland B. Dixon in vol. 69, no. 4, of the *Proceedings* of the American Philosophical Society. (*Nature*, 20 September).



The International Federation of Eugenic Organizations held a conference at the Larmer Tree Grounds, Tollard Royal, Wiltshire, 10-15 September. Eighteen countries maintain membership in the Federation, and many of them sent representatives. It was a good and a new idea to hold an international conference in the heart of a country district, instead of in some stuffy and overcrowded town. Its success was due to the untiring labours of Captain Pitt-Rivers and his staff, whose enthusiasm bids fair to revive the departed glories of the Chase as it was in the days of the redoubtable General.



The Glasgow Herald (17 September) attaches 'world-wide importance' to the discovery on a sandstone rock near Glasgow of 'queer markings', which Mr Ludovic Mann regards as a 'register of astronomical episodes in the year 2983 B.C.' when there is said to have been a partial eclipse of the sun on 27 March at 3 p.m. There the matter rests at present.

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The excavation of the prehistoric site of Thermi, in Lesbos, was continued by Miss W. Lamb on behalf of the British School at Athens. (See ANTIQUITY, III, 484). The uppermost settlement has now been uncovered and planned with the exception of a particular area. It was protected by a wall from 1.2 to 2.4 metres thick, and contained, besides the narrow oblong houses typical of the site, at least two houses with semi-apsidal ends.

One section has been dug to virgin soil, and the large series of vases obtained from the different strata illustrate the development of shapes as well as of fabrics: these vases are hand made and closely allied to those of Troy I and IIa. The figurines, mostly of terracotta, are interesting owing to their variety of type. Copper or bronze, though never common, occurs at all levels, and a crucible found in one of the lowest strata shows that the metal was worked on the site.



The remains of ten cities have been found during the season's excavations of the joint expedition of the Pittsburgh Xenia Seminary and the American School of Oriental Research in Jerusalem, which has been working at Tel Beit Mursim, the ancient Kiriath Sefer, 13 miles southwest of Hebron. In the opinion of the Director, Professor M. G. Kyle, the work accomplished provides evidence for the definite chronology of important events in Biblical history. (*The Times*, 7 August, p. 9).



Mr Humfry Payne, Director of the British School at Athens, reports (*The Times*, 20 August, p. 13) on the early Greek vases and bronzes found during this summer on the site of the Heraeum of Perachora. A vast deposit of objects was discovered, the inscriptions proving it to be remains of Hera's treasure, and covering a period from 750 to 200 B.C. The best of the pottery is Protocorinthian, of the seventh century. 'One example of this kind is the lid of a box decorated with a scene of wild life: a hare escaping from a hound only to fall into the jaws of a lion, and above, parts of other animals. The lid gives some idea of the qualities of the vases of this style—action achieved by simple, but scarcely primitive, means, magnificent calligraphic stylizations of natural forms, and a technique perfectly suited to the matter in hand'. The bronze vases are made of thin sheets of metal and are not in good preservation, but the statuettes, cast solid, are in excellent condition.

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Mr D. Caclamanos, the Greek Minister in London, discusses in a letter to *The Times*, 21 August, p. 11, the announcement by Dr Kyparissis, the Greek archaeologist, of the discovery of the Fountain of the City of Odysseus. A reply by Prof. Wilhelm Dörpfeld, who hoped 'to prove that the news is not correct' is printed 12 September, p. 8. This in turn was answered by Mr Caclamanos on 23 September, p. 8.



Sir Rennell Rodd, M.P. contributes (*The Times*, 11 October, p. 13) an interesting report on the work of the British School at Athens at Ithaca this summer, which has been conducted by Mr W. A. Heurtley, the assistant director. The site at Pelicata has yielded results of historic value and it is hoped to continue excavation there next season.



The work of the Italian Scientific Expedition at the Mumbwa Caves in Northern Rhodesia is reported by Professor Raymond Dart in *The Times*, 22 August, p. 9. Some primitive smelting works were found. The foundry was 6 feet below the surface, and by it was a great accumulation of ash and an immense deposit of burnt rock, incinerated clay, bones, etc., and between the furnace and the cavern wall were numerous fragments of human burials. The claim is made that 'it has been possible to prove from the deposit that when the smelting was carried out the local inhabitants were Bushmen, and were at the lowest phase of the Late Stone Age'.



Some important pre-Christian discoveries are reported (*The Times*, 30 August, p. 11) from Trier, as the result of a Commission 'appointed to carry out researches in the Late-Roman Imperial Residence and Early-Christian bishopric of Trier'. Since 1928, 21 temples and 29 chapels have been uncovered. Among the finds is a remarkable life-size marble torso of Arduenna, the goddess who gave her name to the Ardennes and is identified with Diana; a representation in baked clay of Artio, the Celtic goddess of the Woods and Waters, in the form of a bull, headless, but otherwise complete with pediment; and a bronze winged-Mercury. It is suggested that the temples, with all their altars, idols and offerings were destroyed in A.D. 337.



A report on the work at Meare Lake village during the past season is printed in *The Times*, 11 September, p. 12.

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Mr J. D. S. Pendlebury, curator of the Museum at Knossos, has been appointed director of the Egypt Exploration Society's excavations at Tel-el-Amarnah. Work was begun in October. (*The Times*, 9 September).



As the result of further excavations at Caistor-by-Norwich, Professor Donald Atkinson has established that the Roman occupation continued until the last years of the fourth century, and possibly to the early years of the fifth. Coins as late as Honorius (395-423) have been found. (*The Times*, 10 September, p. 9).



Recent finds at Vinča, a village about 15 miles below Belgrade, on the Danube, were described by Professor Vassič at the meeting of the British Association at Bristol in September. Professor Vassič draws the inference that they prove the spread of the Aegean civilization of about 1400 B.C. to the valley of the Danube, probably by way of the Black Sea. The excavations have been assisted by Sir Charles Hyde. (*The Times*, 13 September, p. 9).



Urns of the Bronze Age have been found at Brown Candover, north of Alresford, Hants. They are described by Mr S.E. Winbolt (*The Times*, 16 September), who also records in the same paper, 1 October, some burial-mounds near Hinton Ampner, which he has excavated.



The present position as regards archaeological exploration in Persia is stated in *The Times*, 7 August, p. 9. The Government has intimated that it desires to assume control over all future research-work in Persia but though this was intimated to the French Government in 1928 nothing has yet been done. In view of the great interest of Persian archaeology it is to be hoped that regulations will be drawn up and passed into law at once.



On p. 315 of the September number, line 9, reference was made to 'Caesar'. This should have been otherwise worded. The person in question was not, of course, Julius Caesar, but Germanicus. We are indebted to one of our readers in Germany for drawing our attention to the slip. Another correction is that of *pictographs* for 'photographs' on p. 382, line 14, of the same number.

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One of our many readers in South Africa has sent us a cutting from *The Daily Dispatch* of East London, 23 August, which raises the question whether there is in southwest Africa or Bechuanaland the remains of a lost city much greater in extent than Zimbabwe. The site is said to be on the banks of a tributary of the Nosob river and south of Gobabis. The walls are built of stone and are more imposing and in better state of preservation than those of Zimbabwe.



The German excavations at Warka (Erech or Uruk) directed by Dr Julius Jordan on behalf of the *Notgemeinschaft der deutschen Wissenschaft*, have already been briefly described in *ANTIQUITY* (IV, 109-111). Preliminary accounts of the first two seasons' work (1928-9, 1929-30) are published in heft 13 of *Deutsche Forschung*, pp. 137-172, with plans and illustrations. This publication can be obtained from Karl Siegismund, Berlin, price 8 marks.



Reports on the excavations at Colchester during the summer, and an account of the principal objects found, have been printed in *The Times* of 4 and 9 August and 23 October. Particulars as to the general direction of the work and the appeal for funds were given in *ANTIQUITY* for September, pp. 362-4.



In *The Listener* (published by the B.B.C.) for 29 October 1930, there is an illustrated and comprehensive article by Mr S. E. Winbolt on 'Archaeology in Great Britain, 1930', in which the various excavations which have been in progress and the discoveries and finds made during the year are recorded.



A replica of the bronze statue of Zeus dredged up near Artemision, Euboea, which is referred to on page 412 of the article by M. Merlin in the present number of *ANTIQUITY*, and illustrated on plate 1, has been presented to the Ashmolean Museum by Sir Arthur Evans.



The important discoveries made on the site of Verulamium (St. Albans) are described by Dr R. E. Mortimer Wheeler in *The Times*, 8 November, pp. 13-14.

Some Recent Articles

This list is not exhaustive but may be found convenient as a record of papers on subjects which are within the scope of ANTIQUITY. Books are occasionally included.

Roman Britain in 1929, by M. V. Taylor and R. G. Collingwood. *Journal of Roman Studies*, 1929, XIX, 180-218.

This valuable schedule of discoveries is an annual publication, and should be consulted by all interested in Roman Britain. It is published in the *Journal of the Society* which, though not confined (as we rather wish it were) to Britain, is the natural outlet for such reports.

Fibules grecques et orientales, by Chr. Blinkenberg. *Kgl. Danske Videnskabernes selskab. Hist.-filol., Meddelelser*, 1926, XIII, ; reference in *ESA*. v, 151.

Recent discoveries of Fossil Man, by Sir Arthur Keith. Supplement to *Nature*, 21 June 1930, pp. 935-42.

The Metallography of some ancient Egyptian implements, by Sir Harold Carpenter and Dr J. M. Robertson. *Nature*, 7 June 1930, pp. 859-62.

Excavations in Whitehawk neolithic camp, near Brighton, by R. P. Ross Williamson. *Sussex Arch. Collns.*, 1930, LXXI, 57-96.

So far as the author and excavator is concerned this is an excellent account of a useful piece of work well carried out. Concentric neolithic camps are still new enough to deserve full treatment. The paper suffers from bad editing, however, for which the writer cannot be responsible. The air-photograph is blurred because it is printed on unsuitable paper, and the line-drawings of pottery—beautifully executed—have been spoilt by over-reduction and irregular reduction. Hardly any are reduced to the same scale. This spoils the effect and greatly hampers comparisons.

Royal Archaeological Institute of Great Britain and Ireland. Descriptive Programme of the Summer Meeting, 1930, at Bath. pp. 64.

This admirable handbook contains no less than 32 plans of towns, castles, abbeys and prehistoric sites within easy reach of Bath. Many of them are published for the first time and the book will have permanent value. The brief but adequate descriptions are by experts, and give succinctly the information that should be needed by a visitor. A feature of the book is the splendid coloured plan (1 : 1800) of Glastonbury abbey.

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The Pliocene and Pleistocene deposits of Wadi Qena and of the Nile Valley between Luxor and Assiut (Qau), by K. S. Sandford. *Quart. Journ. Geol. Soc.* 1929, LXXXV, 493-548.

Hausurnen oder Speicherurnen? by Franz Oelmann. *Bonner Jahrbucher*, heft 134, 1930, pp. 39.

A scholarly consideration of the problem of hut-urns, conducted along sound anthropological lines, and well and fully illustrated.

Mohenjo-daro, a city of 5000 years ago, by Dorothy Mackay. Printed for the Indian State Railways (Publicity Department) by the Times of India Press, Bombay. pp. 12, maps, illustrations.

Intending visitors to India cannot do better than obtain beforehand this useful little guide by the wife of the excavator. The address at which it is to be obtained is Publicity Dept., 26 Alipore Rd., Delhi. In default of the still-awaited official report it is the best—and only—reliable general account of these epoch-making finds.

Chettle Down Earthwork: an ancient pond, by H. S. Toms. *Proc. Dorset N. H. and Arch. Soc.* 1930, LI, 194-203.

The Romance of Archaeology, by R. V. D. Magoffin and Emily C. Davis. *G. Bell and Sons*, 1930, pp. 348, numerous illustrations. 18s.

This is an unnecessary book; but it is worse than that—it conveys a wholly wrong impression of what archaeology is. The style is commonplace and occasionally lapses into vulgarity, especially in the titles of illustrations.

The Origin of the Mycenae Tombs, by Stanley Casson. *Art and Archaeology*, Sept. 1930, xxx, 81-5.

A topical note on a controversial matter which is rapidly becoming settled—the relative dates of the shaft-graves and tholos-tombs; with remarks on the recently found tholos-tomb of Midea.

Die Schachtgräber von Mykenai, by Georg Karo. Verlag F. Bruckmann, München. 120 marks. [To be reviewed later].

Exposé de titres et bibliographie, by Henri Breuil. Emmanuel Grevin, Imprimerie de Lagny, 1929.

The Abbé's bibliography—a formidable one and a most useful brochure which not only students of palaeolithic archaeology will find invaluable for reference.

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Savernake Forest, by H. C. Brentnall. *Marlborough College Nat. Hist. Report*, no. 78, pp. 75-96, with sketch-map.

A useful and scholarly guide, containing information based on original research and not published elsewhere. The section dealing with the bounds of the medieval forest is particularly welcome.

Ancient stone monuments near Lough Swilly, co. Donegal, by Vice-Admiral Boyle Somerville. *Journ. R. Soc. Ant. Ireland*. December 1929, LIX, 149-75.

Those who accept certain ideas about orientation and those who do not will both alike welcome this paper, if only on account of the writer's careful plans of the monuments dealt with.

The Curraghcrowby Souterrain, Ballineen, co. Cork, by Vice-Admiral Boyle Somerville. *Cork Hist. and Arch. Journ.* Jan.-June 1930.

Studien zur älteren bremischen Kartographie, II^{te} teil, by Hans Dörries. *Bremischer Jahrbuch*, 32, 1929, 243-70.

Valuable for the history of cartography in Germany.

Zur Keltenfrage, by Pedro Bosch-Gimpera and Georg Kraft. *Mannus*, VI^{te} Ergänzungsband, 1928, 258-70. [Sonderdruck aus der Festgabe für den 70 jährigen Gustaf Kossinna].

La relazioni mediterranee postmicenee ed il problema etrusco, by Pedro Bosch-Gimpera. *Studi Etruschi*, vol. III, 1929. pp. 41, 2 maps, 4 plates.

An important contribution to a difficult problem, and specially welcome as treating it from the western Mediterranean standpoint.

Die sächsischen Fenstergefäße der Völkerwanderungszeit, by Fritz Roeder. XVIII *Bericht der Röm.-Germ. Komm.* 1928, 149-87.

Deals largely with England. The illustrations are none too good; and some are quite repulsively bad.

Urquhart Castle, by W. Douglas Simpson. 1930. pp. 31.

Bulletin of the Museum, Valletta, Malta. Vol. I, no. 1, December 1929.

We welcome this Bulletin, but we wish it were possible to obtain better printing and illustrations.

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The alleged palaeolithic implements of Sligo: a summary, by J. K. Charlesworth and R. A. S. Macalister. *Proc. R. Irish Acad.*, 1930, xxxix, 18-32.

Early cultures of Atlantic Europe, by C. Daryll Forde. *American Anthropologist*, Jan.-March 1930, xxxii, 21-100.

The megalithic culture-sequence in Iberia, by C. Daryll Forde. *Annals of Archaeology and Anthropology*, 1929, xvi, 37-46.

On the use of greenstone (jadeite, callais, etc.) in the megalithic culture of Brittany, by C. Daryll Forde. *Journ. R. Anthr. Inst.*, 1930, lx, 211-34.

The Bronze Age in West Yorkshire, by Dr A. Raistrick. *Journ. Yorks. Arch. Soc.*, 1929, pp. 354-65, offprint from vol. xxix.

A very useful piece of topographical archaeology—would there were more! Fully illustrated by maps and plans.

Land movements in Scotland in prehistoric and recent times, by J. Graham Callander. *Proc. Soc. Ant. Scotland*, 1928-9, lxiii, 314-22.

The Early Colonization of North-eastern Scotland, by Professor V. G. Childe. *Proc. Roy. Soc. Edinburgh*, 1929-30, l, 51-78.

On the oldest domestic animal and its significance for Palethnology, by A. E. van Giffen. *Kon. Akad. van Wetenschappen te Amsterdam, Proceedings*, 1929, xxxii.

A technical study of skeletal remains of dogs from the Dutch *Terpen*.

A catalogue of the maps in the Bedfordshire County muniments [by G. Herbert Fowler]. 1930. pp. 47.

The only existing catalogue of the old manuscript estate-maps of a county. These are far more valuable to the student (being cadastral and on a large scale) than the small scale county maps usually listed by bibliographers.

Transactions of the Newbury District Field Club, 1930, vol. vi, no. 1, pp. 47. (On sale at Newbury Museum, 2s.)

This is a welcome sign of life—after 19 years' silence! It contains a valuable paper by Mr W. E. Harris who watches so devotedly over the Thatcham area (probably *Spinæ*, though the name has, if so, shifted slightly westward in subsequent times).

The law and practice of Treasure Trove, by G. F. Hill. *Antiquaries Journ.* 1930, x, 228-241.

We recommend all concerned to read this important summary.

Reviews

ANGLO-SAXON WILLS. *Edited with translation and notes by DOROTHY WHITELOCK, M.A. Cambridge Studies in English Legal History. Cambridge University Press. 1930. pp. XLVII, 244. 15s.*

Most of the material for the history of pre-Conquest England has been in print for many years. It has long been recognized however that the editions for which even great scholars such as Kemble, Birch, Thorpe and Plummer were responsible are no longer adequate for all the purposes of modern historical research. The re-editing of the many texts relating to early English history is the task which the present generation of scholars has before it, and as yet comparatively little has been done. Miss Whitelock's edition of thirty-nine Anglo-Saxon wills belonging to the period c. 950 to c. 1066 is a welcome step forward. All the wills have been printed before, some many times, but Miss Whitelock supplies her readers with a set of more accurate texts (whenever possible she has consulted the MSS.) with parallel translations and over 100 pages of useful notes. Unfortunately however, and particularly so since no one is likely to edit a volume of Anglo-Saxon wills for many a day, she has excluded certain wills (including that of King Alfred) because they have been edited adequately elsewhere. The convenience of having all the texts in one volume is very great, and the cost of a few extra pages generally much over-estimated. A 'General Preface' (34 pages) is contributed by Professor Hazeltine, who discusses with great learning most of the difficult problems to which these 'wills' give rise, and his brilliant essay forms an indispensable supplement to the section on the Last Will in Pollock and Maitland's *History of English Law*.

The documents generally spoken of as Anglo-Saxon wills are, as was recognized by Pollock and Maitland, not true wills but rather the predecessors of the will. The true will is a written disposition (signed in the presence of witnesses) of a person's property to take effect after death; it is revocable, appoints executors, and possesses the quality of ambulatoriness, *i.e.*, disposes not only of the property which the testator has when he makes the will but also that which he may acquire between that time and his death. No single Anglo-Saxon will possesses all these characteristics though it may possess the germ of one or more features of the later will. It is known that King Alfred revoked an earlier will, but this was exceptional; the Anglo-Saxon will was an irrevocable post-obit donation. Sometimes (*e.g.*, Theodred, bishop of London, in no. 1 of this volume), but rarely, the testator pronounces his will concerning his property which he has acquired and may yet acquire. The predecessors of the later executors are to be seen in the persons appointed as 'guardians' of the will (*e.g.*, no. iv, will of Ælfsige, bishop of Winchester, 'Then I pray you, my dear friend Ælfheah, that [you] will watch both over the estates and those who are my kinsmen, and that you will never permit anyone to alter this in any way'), or the king, when the will is made, as frequently happens, with his specific consent. The testator very often makes gifts to the king that his will may 'stand'.

Professor Hazeltine emphasizes the fact that the written will, the *cwide*, is not dispositive but evidential, it is not the real will but evidence that the will has been made.

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The real will is an oral statement made in the presence of witnesses. The orality of the will is proved not only by the facts that the term *ecwite* means speech and that the documents are in the vernacular, but also by a number of passages in the wills themselves to which attention is drawn. The oral will made in the presence of witnesses and accompanied by certain formalities was of recognized validity; it might be pronounced by the testator on his death-bed or when he was in good health. It was (sometimes) committed to writing lest the spoken word should be forgotten. The oral will is Germanic in origin, but the practice of recording it in writing is due to ecclesiastical influence—churchmen, as a rule the greatest beneficiaries under these wills, desired the written record for security, but ecclesiastical legal doctrine and native custom alike recognized the validity of the oral transaction, and churchmen demanded no more than evidence-documents. 'The oral will was not an exotic in England; it was native to the Germanic custom of the Anglo-Saxon period of our legal history. The writing, exotic in every sense, was simply a new and better form of testimony'. Further, the Anglo-Saxon will not only confirms previously made spoken contracts (*e.g.*, between the testator and his relatives as regards the succession to portions of his estate), but also, in many instances, is itself an irrevocable contract which will take effect after the testator's death. The discussion of this aspect of the will is one of the most valuable contributions made by Professor Hazeltine's preface for it has not hitherto received adequate attention. The language of some of the wills indicates that they are records of oral contracts, *e.g.*, no. XXXIX:—'This is the agreement which Ulf and his wife Madselin made with [God] and with St. Peter when they went to Jerusalem'. The view that the oral will was a contractual agreement is borne out by the practice of drawing up the written will in duplicate or triplicate in the form of a chirograph, one part as a rule being kept by the donor himself and the others given to the principal donees or to the care of some disinterested authority. The beneficiary no less than the 'testator' is bound by an agreement—for example, a testator binds himself to give certain lands to a church after his death, the church is the promisee but it is also promisor inasmuch as it is bound by the contract to bury the benefactor and pray for his soul. This two-fold conception of the gift is characteristic not only of the Anglo-Saxon but also of other Germanic legal systems. The Anglo-Saxon will is obviously connected very closely with the land-book, and Professor Hazeltine discusses certain aspects of the latter (p. XXXI, *seq.*) giving his support to the view that the land-book no less than the will, was an evidentiary and not a dispositive document between which and the Anglo-Norman charter (the evidentiary character of which is well recognized) there is a direct connexion. In two (nos. XXIII and XXIX) of these wills the influence of the writ on the form of the written will is evident both in the greeting at the beginning and the valediction at the end.

All the Anglo-Saxon wills which have come down to us are those of persons of high rank or very considerable wealth—ethelings, ealdormen, bishops and other great personages. Of the 39 in this volume ten are the wills of women and four the joint wills of man and wife. Miss Whitelock in her notes gives all the information which she has been able to gather concerning the testators and persons mentioned in the wills. The properties disposed of are not only lands but also a great variety of chattels ranging from farm-stock to ecclesiastical ornaments and domestic articles such as cups and tapestries. There is much here to illustrate the social aspect of Old English history, while occasionally light is thrown on the position of certain classes of persons—*e.g.*, Wynflaed (no. III) grants to the nuns of Shaftesbury not only bondmen but also the *geburns* on one of her estates. Clauses enjoining the liberation of slaves are very common

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in the wills. Two episcopal wills (nos. 1 and xxvi) have a direct bearing on the ecclesiastical organization of East Anglia. The will of Theodred, bishop of London, c. 942-c. 951, raises a somewhat important question. Miss Whitelock thinks that Theodred's reference to his see at Hoxne shows that he was also bishop of Suffolk but she rightly translates *biscopriche* in this document as episcopal property (see note p. 103). The possession of property in Hoxne in Suffolk, even though Domesday (II, fo. 379) states that 'In hoc manerio erat ecclesia sedes episcopatus de Sudfolc T.R.E.', does not necessarily imply that he was bishop of the diocese. That the Danes and English of East Anglia had a bishop or bishops soon after the acceptance of Christianity by the former follows from the language of the edict known as 'Edward and Guthrum,' though their names have not come down to us. It may be that the whole of East Anglia or perhaps the southern portion only (the ancient diocese of Dunwich) was placed under the jurisdiction of the bishop of London. The problem needs further consideration. Ælfric, bishop of Elmham (d. 1038) makes bequests to the priests at Elmham and the priests at Hoxne (p. 72). This, taken in conjunction with the passage in Domesday quoted above, shows that though there was but one see in East Anglia from the early or middle tenth century onwards, the extinct bishopric of Dunwich did not wholly lose its identity. In East-Anglia, at least until 1066, as in the medieval bishoprics of Bath and Wells and Coventry-Lichfield-Chester, there was more than one episcopal seat.

Miss Whitelock's book, owing much to the published work and the generously acknowledged help of other scholars, is a credit to all concerned in its production. It is to be hoped that the series, of which this is the fifth and so far the most interesting volume, will be continued and that editors equal in scholarship and industry to Miss Whitelock will be forthcoming. The sale of such books must necessarily be limited, but one may urge that neither the binding nor the paper justifies the price, which is certainly high.

R. R. DARLINGTON.

GREEK VASES IN POLAND. By J. D. BRAZLEY, *Lincoln Professor of Classical Archaeology in the University of Oxford*. Clarendon Press, 1928. pp. xvi, 88, with 32 photographic plates. 42s.

As Professor Beazley says in his preface, 'the study of Greek vases is a different thing to what it was fifty years ago'. It might be added that the cataloguing of Greek vases is a different thing, since Professor Beazley took to describing them. On the relation between the material arts and literary description much has been written since Lessing's *Laocoon* and before it; but on the art of cataloguing there are few treatises yet. Is the ideal catalogue of works of art an affair of serial numbers, dimensions, find-spots, and former ownerships; of 'Athena and Thesus, confronted' like heraldic beasts on an escutcheon; of occasional thrills such as 'hopelessly repainted', 'inscription illegible', 'in parts not certainly ancient'? Or does it extend to us the 'extreme kindness and perfect hospitality' of a Polish prince, with his learned and eloquent guest to make us at home among his lovely possessions? It is not that the vast preliminary labour of many hands goes unacknowledged here, in ample footnotes; nor our guide's own world-wide exploration of the haunts of Greek vases, and unflinching memory for their details of technique and style. But these are here means to an end, that 'instruction and delight', which a great collector and patron of collectors willed that his treasures should bring to his countrymen. We have only to compare the text of this volume with its beautiful illustrations, to realize what the study of Greek vases has now come to be,

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for one of its most eminent exponents. Hardly a stroke of the brush is without its significance, its contribution to that cumulative, let us hope unending, study, no less than to our enjoyment now.

And what we are called to enjoy is twofold at least. In this year of the Italian Exhibition, the quaint jargon of the connoisseur means more for many of us than heretofore. Douris and Brygos, Epiktetos and Myson, we know; the 'Achilles painter' perhaps; but what of the 'painter of the Munich cup', the 'Providence painter', the 'Tymbos painter', the 'Washing painter' and him 'whom I have called the Boot painter because he likes to draw women busied with their boots' (p. 37), and whose females are 'slightly froggish' in spite of their descent from those of the 'Kleophrades painter'? What they respectively stood for, in that amazing efflorescence of draughtsmanship, we learn, as Professor Beazley himself has learned, by examples rather than by precepts. But here and there a body of doctrine looms up; one begins to see the wood among the trees. 'Side by side with the art of the Penthesilea painter and the Sotades painter—a realistic art with a certain scorn of perfect finish—a very different art flourished in the seventies' (it is the fifth century that is in question)—'a subdued refined art with a polished technique. We can trace its history backward and forward: the originator of it is Douris; the Copenhagen painter and the Syriskos painter apply it to the decoration of big vases; and it leads on to the classical art of the Villa Giulia painter and the Euaion painter in the sixties to forties'. Thus much, to explain one whose 'Aphrodite in the British Museum might be called the earliest of all Greek classical works, in Wölfflin's sense of the word classical; and that implies a breadth, and a strain of majesty, which in the academic group are never found. What does the academic group offer instead? Think of the masterpieces of the style' (in a little cataract of examples), 'pure, perfect, floral line; and expression attained without the melodious contour being disturbed . . .'. Or again (p. 75), of an Apulian vase 'in the so-called Gnathian technique: a pair of incised wreaths, and between them, in white, with brown details, a ravishing little figure of a muffled dancer . . . What a relief, after looking at late Apulian mascheronekraters, or even thinking about them. More than three hundred years later, the same contrast in the same quarter of the world: when one turns from the elaborate Pompeian "histories" to the elfin dancers and tight-rope walkers of the Villa of Cicero, or to a few perfect brush-strokes representing a wine cup, or an apple, or a glass'. But there can be blame as well as appreciation; as (p. 77) 'of a class of vases, chiefly neck-amphorae, made by barbarians, probably somewhere in Campania, in the latter part of the fifth century. The glaze is good, and the shapes laudable; all is well when the painter restricts himself to a narrow band of pattern round the vase and a little device in silhouette under each handle—a leaf, or bird, or deer, or such human faces as glower coldly at one from Norman corbels: but he prefers drawing large figures in the Greek manner, and his figurework is marvellously crude, or again (p. 71) 'The Cracow vase is in the regular "fat-boy" style; the other is less distressing'. So potter after potter is brought back from beyond to be judged according to their works; 'this bourgeois painter with his earthbound people and his absurd interest in furniture' (p. 38); the 'humble but light-hearted contemporary' of the late archaic artists (p. 6); the 'excellent sober style' of the 'Providence painter'; the 'strong wiry relief-lines which do much to redeem the figures from over-sweetness' of the 'Eretria painter', to whom also the whole 'Lemnos group of cups' is now happily assigned, or (p. 73) the 'beautiful motives—academized by a drawing master, but never quite bereft of their original brightness'. And the modern draughtsman stands at the same bar: 'The grandeur of the figures is so great that it

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survives translation into the idiom of Housselin, who has here done himself full justice. He has coarsened every black line, omitted all the red lines, and all the fine brown detail on the bodies and the clothes, and obscured the restorations'. Elsewhere, however, the same luckless one 'omits the finer detail, and is careful to insert the modern restorations'.

But that is only half the story of these paintings. Many of the subjects of them are commonplace episodes of an inexhaustible mythology; as for example (p. 30) where Athena 'dressed most simply . . . looks towards Hermes . . . A slight work, but there is a certain charm in the loose-limbed stance of the girl goddess, in the grave bend of her large-eyed head, and in the respectful bearing of the messenger god', though what he came to say, who shall tell? A few, less obvious, raise puzzling problems of identification. But most of those, at all events, which Professor Beazley selects for interpretation, are glimpses of the daily life of the time. To recognize these, however, is not given to everyone. For example, in the lovely scene of worship on plate 23, 'a scene from ordinary life has been translated into a higher key. The priestess and her companions making preparations for the festival of Dionysos; the wine jars filled and placed ready, the lyres taken down from the pegs in the store room. The priestess is the mother of a little boy. A shame to leave him at home all day: her sister will bring him and look after him. She has brought him; he sees his mother, she turns to him in the midst of the stir and the splendour, and he will remember that moment his whole life through. That is the foundation of the picture' (p. 52), but in the 'transformation' so subtly indicated 'the little boy has been changed, and has become a little satyr', as wise men of old detected, but failed to explain. Here is a sample of the 'Washing painter's' art: 'two women have come to the fountain to fetch water, but they are not in a hurry, and so they sit down, using their water-pots as seats, and apply themselves to a game of *flaahfinger*' as popular with the ancients as in the south to-day—a third woman holds a wreath for the victor, and Eros is also there, not for any special reason, but because, in the language of Jahn, 'he is the constant companion of youth and grace'. But as Professor Beazley adds, 'the subject has been often discussed', and it is hardly to be expected that others, less content with just what the 'Washing painter' has told us, will forego the hunt for the 'special reason' why Eros passed that way just then, and what depended on this trial of skill. Or is it that in this, as in another instance (p. 2) 'the artist, like a revue-producer, has scrapped his plot, and replaced the tritagonists by a gang of supers'? For longer flights of interpretation, such as the initiation-scene (pp. 41-43) and the Dance of the Islands (pp. 62-64) where by a delightful refinement 'one or two of the figures are dancing, and the rest dancing along'—reference must be made to the book itself. Occasionally we may venture a doubt on a supplement. Is the meditative youth in plate 8.1 quite as sober as the description (p. 23) appears to suggest?; though truly 'no two persons walk alike'; but the rest of the people on this vase 'seem in pretty good form'. And in plate 17.2, is not the maid on the left looking back into her mistress' mirror; seeing there the quizzical face of the lady, who, for her own part, studies at ease the veteran lover ogling her from behind her chair?

It is a pity that in this last, and in several others, of the skilful photographs, the high-lights, so difficult to exorcise on such smooth surfaces, obscure important parts of the design. But what is hard to attain in a museum studio becomes almost impracticable in a private collection; and many of these pictures are indeed wonderful. Some day perhaps, we shall have television, and survey the *Corpus Vasorum* in the originals. Till then, we may well be content with such vivid 'penmanship of the line', to pervert one of the writer's own phrases, as is given us here.

J. L. MYRES.

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THE ATHENIAN CALENDAR IN THE FIFTH CENTURY. By BENJAMIN DEAN MERRITT. *Published for the American School of Classical Studies at Athens. Harvard University Press, 1928. pp. viii, 138.*

This book presents a remarkable piece of historical reconstruction, by a combination of archaeological, financial, and astronomical evidence, which illustrates the dependence of scientific history on such co-operation of other branches of knowledge.

The Peloponnesian War broke out in the spring of 432 B.C. Athens engaged in it with large annual revenues including payments from tributaries in the old Delian League; a considerable surplus in hand; and in reserve the accumulated wealth of the patron-goddess Athena, and the other deities who had temples on Athenian soil. But the war outlay was heavy, and these reserves were gradually depleted, till in the Attic year 425-4 B.C. 'on the third day of the fourth prytany' it was proposed to double the Delian tribute. Borrowing, however, continued, and when the Peace of Nicias was being arranged in 422 B.C., one of the first things to be done was to provide for the repayment of the loans from Athena and the 'Other Gods', together with interest, the amount of which depended, of course, on the date from which each instalment had been drawn out. The record of these transactions, for the years 426-422 was published, according to custom, on a single marble slab on the Acropolis.

Of this inscription, three large fragments, and several smaller ones were recovered long ago, and have been the subject of much study and discussion. Recently other small fragments were found during the American Schools' excavation of the Erechtheum, making fifteen pieces in all. They are published in *Inscriptiones Graecae* ¹⁵, 324 and 306. Thanks to a few remnants of original margin, and junctions between edges, the relative position of the principal fragments in the original slab is now practically certain. Parts of, at least, 122 lines are preserved; and the importance of the new fragments is that, small and discontinuous as they are, they serve to connect the upper and the lower halves of the inscription and give a general notion of the contents of the devastated area. They also necessitate readjustment of the positions previously assigned to other pieces, and this in turn necessitates re-interpretation and supplement in the vacant intervals.

In any such reconstruction, two main problems have always had to be kept in view; the purpose of the several payments, and the date at which each was made. The solutions of these problems are interdependent, for the amounts of interest payable depends on the duration of the loan. How were these reckoned? From one quadrennial Panathenaic festival to the next, in days; or by the months and days of the civil calendar; or by the prytanies or sessions of the tribal sub-committees of the council, whose minutes were the authority for the transaction. All three reckonings occur in this inscription, and their bewildering combinations show both that there was some reason for combining them, and also that there was need for that simplification of the Attic calendar which is known to have been affected in the general re-conditioning of Athens after the long war was lost.

That the rate of interest was uniformly one drachma a day on five talents was established by Kubicki in 1885. Wherever, therefore, the amounts of interest and of capital are known, the interval in days between the beginning and end of the loan is known also. From these data Dr Merritt has been able to satisfy himself (p. 16) that the loans were reckoned to the last day of the council's year, reckoned in prytanies, not of the civil year, nor of the Panathenaic year, by which the creditors, namely the stewards of Athena and the 'Other Gods' kept their own accounts, as this inscription agrees in testifying. As these years were differently calculated, and never coincided exactly, payments made by the council at the end of its financial year might be found as receipts in the

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Other Gods' accounts early in the next; but this caused no more practical inconvenience than does the present procedure of the University of Oxford, which closes its accounts in July, in respect of grants from the Treasury, whose financial year begins on the fifth of April, and of the bills of its tradesmen who close their accounts on December 31.

An immediate result of these calculations (p. 19) is inconsistent with Keil's reckoning of the correspondence between the civil year and the council's, on the basis of which many important dates in Greek history have been accepted. Consequently, Dr Merritt's memoir not only includes chapters on the epigraphic aspect of the new fragments, but on the methods of reckoning interest, on which Keil 'hatte den Standpunkt der Resignation gewonnen' (p. 31), and on the actual totals of loans from Athena Polias, Athena Nike—as King Charles levied contributions both from Christ Church and from Jesus College—as well as from the Other Gods, which add significant details to the chronological argument also. It contains also the application of the new data about the working of the Athenian calendar in the years from 426-422 B.C. to earlier and later periods. For example, Aristotle in his *Athenian Constitution* (ch. 32.1) says that in 411 B.C. the new council was due to enter office on the fourteenth day of the month Skirophorion, from which, working backwards *secundum artem*, he is able to equate the first day of the first prytany of the council of 422-21 with the tenth day of the month Hecatombaion in that year; which sufficiently illustrates the way in which the two reckonings diverged, so that from time to time intercalation was necessary, on a far larger scale than we tolerate with our own leap-years. A similar point of departure exists for the year 433 B.C., and from these and the inscription under review it can be shown which were the ordinary years, and which had intercalary months. The eclipse of October 9, 425 B.C., which occurred in the month Boedromion, permits us to correlate the Attic calendar with the Julian, and the comet of 427-6 which appeared during the month of Gamelion and close to the winter solstice, confirms the position of the ordinary and intercalary years (p. 93); and the recorded payments of wages in connexion with the building of the Erechtheum establish the varying lengths of the prytanies, and their independence of the length of the civil year.

A further point, which has caused much perplexity, concerns the discordance between the Attic civil year in this period, and the actual lunar cycle. The man in the street, and in Aristophanes' jesting reference, the gods also, had their grievances about it; the inscription *I.G.1² 76* instructs 'the new archon to intercalate the month Hecatombaion' in 422-21 B.C.; there are other difficulties (for example, in Thucydides' dates for events in the Peloponnesian War) which are relieved when account is taken of Dr Merritt's assignments. That the 'council's year' at Athens was so composed that it averaged 365½ days, and consequently corresponded with the actual solar year, is indeed a conclusion of great importance; as it appears also that it began one week after the actual summer solstice, it becomes possible to assign any event of which the place is recorded in the 'council's year' to its approximate date in the Julian calendar, without the intermediation of the civil year with its intercalary months. Later, and probably in the earlier half of the fourth century, the 'council's year' and the civil year were made of equal length, as Aristotle knew (*Constitution of Athens* 43.2); and Dr Merritt gives good reason for supposing that this, like so much else that distinguishes the later Athens from the older, belongs to the great re-conditioning of Athenian institutions after the 'year of anarchy' 404-3 B.C.

There is an excellent index and bibliography. The plates give the actual condition of the fragments, and the full text so far as it can be reconstituted at present.

J. L. MYRES.

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THE NEGRO IN GREEK AND ROMAN CIVILIZATION; a study of the Ethiopian type. By GRACE HADLEY BEARDSLEY, PH.D. *Baltimore and London* (Milford), 1929. (*Johns Hopkins University Studies in Archaeology* no. 4) pp. XII, 145, with 24 figures. 16s.

Representations of negro types in Greek and Roman art are so common that even this monograph publishes only a selection of 289 numbers. The types vary greatly, even if we do not reckon as 'Ethiopian' the fine bronze head (no. 156) from Cyrene, in the British Museum (which may portray a Libyan but certainly is not negroid) or the late Roman portrait no. 289 which is at best half-caste, and may not be 'Ethiopian' at all: it was found in the Thyreatis, in eastern Peloponnese. By 'Ethiopian' however, Dr Beardsley means only what a Greek meant by *Aithiops*, and that was something vague enough; as she says, it 'closely parallels the modern use of negro', and there is no evidence that Homeric *Aithiopes* were either black or negroid. Hesiod (*Works and Days* 527) knew of 'blue' men, who lived where the sun goes in winter, and Minnermus (Diehl 10) thought Memnon's Ethiopians lived where the sun's chariot rested till dawn: somewhere 'back of beyond'. The Minoan Aegean, however, had its negro figure-of-fun, and black troops. The theory that black skin resulted from sunburn may be implicit in the name *Aithiops*, and is explicit in Euripides (Nauck, fr. 771): the sun smites the swarthy folk as he rises. A special problem is set by Memnon and Andromeda; were they black, or whites ruling black subjects? Another is the Busiris story as told on Attic vases (fig. 1, no. 7); here the king of Egypt is white but ill-favoured; some of his people full blooded negroes, though it was in Egypt that Heracles encountered them.

Why did negro types attract classical artists in this queer way? Were they legendary Ethiopians, or prophylactic charms, or merely studies of slaves, or 'the product of a joyous, almost child-like, interest in a new race'. To stress the 'comic' aspect of the negro as the white man sees him and his real sense of humour, partly explains his prophylactic utility; if you can make the devil laugh, he cannot harm you. The contrasted masks of Ethiopian and Asiatic point to a more serious appreciation of ethnic diversity.

Unfortunately, Dr Beardsley does not carry the study of negroid types far enough to throw any light on the sources even of the principal varieties. This would indeed be a fascinating study, and might throw some light on the corresponding problem, what were the racial elements in the Greek people which determined the selection of the principal 'Greek types' of white beauty?; for these too are diverse. Were Greek girls as like the white lady on fig. 6, as the black lady, back to back with her, is like a negress?; compare the negress on fig. 7, which has unmistakably Hercules on the other side.

The plastic vases with negro and crocodile raise another point. Where in the world could a Greek potter see a crocodile, so as to model it so vigorously. Had Sotades and his fellows travelled in Egypt? or did crocodiles come overseas with the faience and scarabs and other Egyptian bric-à-brac? And similarly, how common were 'Ethiopian' slaves in Greece in the fifth or fourth centuries? There is certainly one on the vase no. 124, black and turbaned, and on no. 125.

It will be seen that there is here much queer material, carefully set forth, and occasion for quite a number of minor studies in a bypath at the same time social and ethnological.

J. L. MYRES.

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EXPLORATIONS IN HITTITE ASIA MINOR, 1929. By H. H. VON DER OSTEN.
University of Chicago Press. Oriental Institute Communications, no. 8. 1930.
pp. 196, 163 illustrations and 9 maps. 9s.

After reading a former communication by the same author on the same subject, one would not expect to find much interest in another. That the author enjoyed his trip, and that he passed through some most interesting country, is evident from a cursory glance at his report. A more careful reading of it quite fails to reveal any gain to the study of Hittite archaeology. It was no doubt a pleasure to the author to write this chatty account of his travels, but why should anyone publish it? The itinerary on pp. 178-181 shows that he started on 10 June 1929, and finished his journey on 19 July, that he made a second journey from 12-22 August, that he often motored 200 or 300 kilometres in a day, and that he seldom spent a whole day at any one place. No one will expect archaeological results of any value from 'explorations' conducted in this way. To take one instance: I noted that the 'explorer' went to Gürün, and I read his account in the hope of learning something as to the present state of the two inscriptions there. All I found, however, was that the party arrived after some difficulty, apparently late in the evening, that they were taken for bandits by the intelligent natives, and that they started off again 'very early the next morning'. But perhaps we should be thankful that they do not seem to have been aware of their opportunity. If they had taken a photograph of either inscription, it would have been an illegible snap-shot, and if they had made a squeeze they might have damaged the stone.

The illustrations in fact are on a level with the letterpress. In some cases one can, with a little goodwill, discover what they are meant to illustrate because the objects have been well reproduced by previous writers. In other cases they are quite worthless for study, or they show a piece of landscape which might be anywhere. One mound (the author is careful to call it always a *höyük*) is very much like another, and has no interest unless we are shown its relation to the surrounding country or something distinctive about it. The 'Communication' might perhaps be regarded as a preliminary report to to be followed by a scientific account in the *Publications* of the Oriental Institute of Chicago. If so, the Publication is likely to be equally disappointing. Some Phrygian inscriptions (long known to exist) are mentioned on p. 159, with a reference to a previous Publication. I looked up the reference and found an 'illustration' of one of them on which no single letter was distinguishable, while as for the other, the 'explorer' had no time to do anything with it. Perhaps he had not done a sufficient number of kilometres in his automobile that day. Yet the relations of the Phrygians to the Hittites are as important as they are obscure.

One cannot help regretting so grievous a loss of opportunity, and the expenditure of so much money, time and energy for so little result. If the whole time had been spent on one of the many promising sites visited, discoveries might have been made which would have been welcomed by scholars with enthusiastic gratitude. But joy-rides in such a country do not make the work of subsequent explorers any easier. If you try to hustle the natives they will assuredly defeat you by blank inertia, and will remember the incident to the disadvantage of the next traveller—who may be a serious person.

In about 50 days spent in Hittite country the explorer travelled 5139 kilometres by motor-car, and 551 kilometres on foot or on horseback—and he does not seem to be ashamed of it!

A. COWLEY.

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ANCIENT HIGHWAYS OF THE PARISH OF HALIFAX. By W. B. CRUMP, M.A. *Halifax: Halifax Printing Co. Ltd., 1929. pp. 115, 2 illustrations and 2 folding maps. 4s.*

The Author deals with a part of Yorkshire which is off the beaten track, on the slope of the Pennine range and on the fringe of a wild moorland country. The book is not commonplace topography but full of interest to the student of the old trading routes of the 17th and earlier centuries, especially in the historical facts drawn from constables' accounts and other local data. By these happily disposed extracts we can visualize the motley traffic passing along the roads. Valuable too, are the little side-lights thrown upon the evolution of the settlements from early times. Mr Crump has obviously made a close study of the roads and trackways or 'causeys', and peopled them with the men of the period with the pack-horse trains, the gypsies, the traveller 'with a pass' and the 'outlandish' persons, in fact the flotsam and jetsam of the 17th century. More than a passing acquaintance is shown with the map makers from the 16th century onwards and the author has left no source of knowledge untapped. Very interesting are the payments for the upkeep of roads and Mr Crump is to be congratulated upon his work for the preservation of their historical importance. We note the book is a collected edition of a series of lectures written for the Halifax Antiquarian Society, and we hope that other societies may encourage such endeavour. It is a treatise which can be read with enjoyment by even a complete stranger to the district, so entertaining are the historical references.

HUGH P. KENDALL.

STONEHENGE, TODAY AND YESTERDAY. By FRANK STEVENS. *London: H.M. Stationery Office. Revised edition, 1929. pp. 90, with illustrations and plan. 6d.*

This is a revised edition of the official handbook familiar to Stonehenge visitors and both in exposition and in format is a model of its kind. The astronomical theory is stated very fairly; the Druids are swept back gently into the limbo. The main conclusions from recent investigations are well described though it is a pity it was thought necessary to omit the logical deductions on which they are based since they are such instructive examples of modern archaeological method.

Mr Stevens still keeps to the attractive guess that the blue stones formerly stood in the Aubrey holes but if the numbers of stones and holes are to correspond as he suggests he will have to revise his figure of fifteen stones in the horseshoe.

The examples of drinking cups quoted on p. 81 are apt to mislead as to the actual rarity; the fact that half of the beakers found in Wiltshire, as shown in Mrs Cunnington's list, were near Stonehenge, is important.

A new sketch plan is added showing the latest discoveries, including the z and y holes, to which however there is no reference in the text.

ERNEST WALLS.

MEISTERWERKE DER TÜRKISCHEN MUSEEN ZU KONSTANTINOPEL:
Band 1. Griechische und römische Skulpturen des Antikenmuseums. By MARTIN SCHEDEL. *Berlin and Leipzig: Walter de Gruyter and Co., 1928. 50 plates. 180 marks.*

Works upon ancient sculpture appear with gratifying frequency; too often their price places them beyond the means of most individuals. This costly volume of fifty fine photographic plates—the first of a series—is a welcome contribution from Turkey,

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produced under the care of Dr Schede, of Berlin, who has written a short and popular introduction, printed in Turkish and German. The book fills a need, since the authoritative catalogue of Mendel called for illustration. The 'Alexander' and other Sidon sarcophagi, having been illustrated in the works of Hamdi Bey-Reinach and Winter, are not here included.

The plates cover a period of nearly a thousand years, during which one tradition reigned throughout the Eastern Mediterranean, though with great undulations of style and excellence. This is perhaps the chief value of a book dealing with art locally rather than chronologically; as we turn over the pages, we see the history of the land mirrored in its art. Constantinople is richest, as might be expected, in Hellenistic art; but there are interesting archaic works, such as the well-known 'Funerary Banquet' from Thasos, with its subdued and dignified pathos; a couple of chariot-reliefs from Cyzicus; and a noble late archaic horse's head, below which Dr Schede, by showing an example of the same subject made some three centuries later, has strikingly illustrated the difference between the majesty of idealism and the cloying exactitude of painstaking realism.

Among works of the Classical period may be mentioned an interesting sarcophagus from Gaza, a Hellenized version of the Phoenician highly stylized anthropomorphic type, the face alone being naturalistically rendered.

Most of the Hellenistic works will be familiar: a 'white' Marsyas; the effeminate Apollo from Tralles; the relief from the same place showing a man beneath a plane-tree making fast one end of a rope; the pretty boy boxer, wrapped, meditative and slightly smiling, in a simply but artfully disposed cloak (the acknowledged darling of most visitors to the museum); and of course Alexander, if indeed we may so say: for to become a legend and a god involves the penalty of becoming also a type. We see also, in side-view as well as frontally, the statue of a woman from Magnesia in which three layers of drapery are portrayed with marvellous technique; the Muse from Miletropolis in the manner of the Neo-Attic reliefs, for which a Pergamene origin is in consequence claimed; Caryatids, including the fine archaizing example from Tralles; and other statues belonging to the same period.

With the Roman period interest centres on portraiture: we see Claudia with a Flavian headdress (perhaps the fashion lingered longer in Asia); Hadrian, conqueror and builder, armoured and scowling, his foot upon the neck of a prostrate barbarian. We see examples of what may be called his Hellenic Revival; although we notice how the Roman spirit worked in the crudity of sculptures intended to adorn lofty buildings—what the eye did not see the heart did not grieve for; and in the profuse but heavy-handed decoration of the baths at Aphrodisias—formal foliage alive with cupids and beasts and birds. To a not much later date belongs an over-embellished sarcophagus from Tripolis, among whose decoration may be discerned—but with a difference—the same scene of domestic life as appears on the archaic stone from Thasos.

To a century later belongs the well-known and interesting sarcophagus from the site of Sidamara, typical of a group of coffins in which an architectural background is overloaded with sculptured figures; the deceased appears, but it is clear that his features were only added to a stock-line when the tenancy of the coffin had been decided upon. Half of the decoration consists of an elaborate hunting-scene: the lid follows the originally Etruscan fashion of showing recumbent figures of the dead.

This work presents many points of interest: not least, the extent to which the drill was superseding the chisel as sculpture went its way towards Byzantinism. Not only in technique, but in the faces of the portraits of this period, as we pass from the 3rd

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to the 4th century, do we see the signs of a changing world. The expression of countenance is no longer pagan: it is eloquent neither of the enjoyment of life nor of intellectual effort; it tells of the throes of salvationism. We are faced with the forerunners of medieval sculpture: we certainly feel ourselves already upon the threshold of Byzantine art.

Byzantium was founded by Greeks, and Greek, in spite of an over-lay of Roman domination, it remained. The history of the land is in this book, of which no appreciation save that yielded by study of its pages can be sufficient. It is a pity that so few of us can afford so expensive a luxury.

W. L. CUTTLE.

THE PREHISTORIC AND ROMAN REMAINS OF DENBIGHSHIRE. By REV. ELLIS DAVIES, M.A., F.S.A. Cardiff: William Lewis Ltd., 1929. pp. xxiii, 426, with 146 illustrations and map.

The book is a welcome and successful attempt by one of the joint editors of *Archaeologia Cambrensis* to catalogue with brief descriptions the Roman and pre-Roman antiquities of the county of Denbigh, the monuments and finds being classified under parishes. Roman influence is only represented by the potteries at Holt, coin hoards, and two sets of bronze cooking utensils, one of about 50 pieces.

Five megalithic burial chambers are described as still more or less intact, including Capel Garmon recently illustrated in *ANTIQUITY*; of others there is little more than the memory to record, while one imaginary example in Llanrhaiadr ym Mochnant is rightly rejected. Over 250 tumuli, cairns and circles are plotted on the map. Here comparison with the Inventory of the Royal Commission on Ancient Monuments is inevitable, and the corresponding distribution map in that volume shows that the gleaner has gathered more than the harvesters, who only record between 50 and 60.

It is satisfactory to find that one hill-fort of much importance in the parish of Llanfair Dyffryn Clwyd, which was very summarily dismissed by the Commissioners, now receives fairer treatment (although the plan of it is incomplete). Other omissions are made good by the plan and description of the fort on Mynydd y Gaer in Llanefydd parish, the description of a second in the same parish, and others in the parishes of Llansantffraid Glan Conway, Tre Brys, and two in Llangollen, Pen-y-gaer, and the early entrenchment on Dinas Bran within which the medieval castle was placed.

The map is a poor thing, lacking parish boundaries and containing many misspellings of place-names, and its only use is to indicate the distribution of the different types of monuments. The failure to show clearly the boundaries of Merford and Hoseley, the detached portion of Flintshire contained in Denbighshire, wrongly accuses the author of omitting to mark the great outlying hill-fort known as the Rofft, alongside the main G.W.R. line—now, alas, being rapidly destroyed for the sake of the gravel of which the hill is composed.

The county boundary is also wrongly placed near Pentre Foelas, leaving a hill-fort in the parish of Tre Brys apparently outside the county.

For these blemishes the author is only partly responsible, while he deserves every credit for the fifteen years careful and accurate field work and research which have produced a volume which supplements the Inventory of the Royal Commission and sets an example which might well be followed by other counties in England as well as Wales.

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THE ENGLISH PARISH CHURCH. By E. A. GREENING LAMBORNE. *Oxford: at the Clarendon Press, 1929. pp. 157, with illustrations. 3s. 6d.*

This is an interesting little book, and as it covers the history of the parish church from Saxon times to the eighteenth century, and also deals with effigies and armour, costume, epitaphs, chests and parish records it follows that only a selection of the important facts can have been included. Its weakest point is its illustrations. The plates are not very clear and do not always illustrate the subjects for which they were chosen; the figures themselves are good, but in the majority of cases no statement is made of the place from which they are taken. In reading the book it is a constant annoyance to be referred to plates and figures the page of which is not given.

The statement on p. 64 that 'foliage of a square and lifeless kind was sometimes cut on caps by the mason but carving had for the most part passed into the hands of the carpenter by the end of the fourteenth century' is not true, at any rate for the West country, where beautiful stone work of fifteenth century date is found on pulpits, doorways, panelling on flat surfaces and elsewhere.

DINA PORTWAY DOBSON.

CLASSICAL SCULPTURE. By A. W. LAWRENCE. *London: Jonathan Cape, 1929. pp. 419, with 160 plates and 31 text illustrations. 15s.*

There is a tendency in recent times to approach the Ancient World as an unity in the earlier stages of study. What other writers have attempted in history Mr Lawrence in this book essays in the field of sculpture, and surveys the whole course of development of Greek and Roman work from earliest times to the end of the Pagan Empire. There is much to be said for such a broad sweep in an introductory study. A mere glance through the plates of this volume is enough to reveal the variety of the achievement of the Ancient World in this field, and the striking differences in aims and technique over this long period can scarcely fail to rouse interest. Moreover, books on Roman sculpture are few, and the subject has received less attention than either the existing remains or their importance in the history of art would warrant. 'Some', says Mr Lawrence, 'profess to see little Hellenic influence in the technique of Roman art, but that idea is as false as the old view that Roman art was merely Greek art in its last stages of decay. The differences between Greece and Rome have been too well emphasized, but what has not been sufficiently emphasized is that each brought to the other a complementary gift'.

The brevity imposed upon the author by the treatment of so large a subject in the small compass of 400 pages sometimes leads him to make rather sweeping statements for which evidence would be hard to find. In this manner is his remark that 'any Minoan or Mycenaean influence upon the sculpture of historic Greece, if indeed it was felt at all, was exerted merely through the accidental discovery of buried works of art'. The Minoans and Mycenaeans have indeed little to show in sculpture, but the almost contemptuous dismissal which they receive from Mr Lawrence is perhaps a little misleading. In the enumeration of the few survivals of this age mention might perhaps have been made of the British Museum fragment of relief showing part of a bull and a tree, figured in Hall's *Aegean Archaeology* (plate xxxi, 2).

The fullest treatment is naturally accorded to the fifth and fourth centuries B.C.; indeed the chapters on this period occupy nearly a third of the book. Brief introductory chapters deal with such subjects as the bases of our knowledge, the materials and methods employed by ancient sculptors, copies, deities and their attributes, and Greek and Roman

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dress. Although in many sections Mr Lawrence's treatment is summary, fuller sources of information are indicated in footnotes and a bibliography. An excellent feature of the book is the liberal scale upon which it is illustrated. Apart from some 30 figures in the text there are 160 plates, many of which contain illustrations of two works. The plates are admirably clear, and in addition to the works commonly figured we are given much that is less familiar. The fine Roman head of a girl in New York is here published for the first time, and by admitting sparingly illustrations of the Parthenon sculptures, which are readily accessible, Mr Lawrence has made room for many other things of interest, such as the reliefs from the treasuries of Delphi, the stela of a horseman (Vatican), an archaistic relief in Copenhagen, the old woman marketing (New York), and the 'Lycian' sarcophagus (Constantinople)—to name only a few of them. Mr Lawrence's book is a very useful introduction to the study of classical sculpture, either for the professed student, or for those who would acquire some basis of knowledge for the appreciation of the many works of ancient sculpture to be found in the museums of Europe.

The book is well produced with pleasing type, and errors are few. The following small points however were noticed:—p. 79, line 3 from the end, *for* Plato *read* Pluto; p. 158, line 13, *for* Alikakos *read* Alexikakos; p. 150 (footnote) *for* Deonne *read* Deonna; p. 371, line 4, *for* enlivening *read* enlivening. The bronze head figured in plate IIIb, conjectured to be that of Demetrius I of Syria as the text states (pp. 303 and 312), is described on the plate as Demetrius II.

G. F. FORSEY.

SOVANA. By R. BIANCHI BANDINELLI. *Florence: Rinascimento del Libro*, 1929. 100 lire.

Sovana has been selected as the subject of the first monograph upon an Etruscan site to be published by the Comitato Permanente per l'Etruria, which, under the presidency of Antonio Minto, the energetic head of the Archaeological Museum in Florence, is doing such good work in the study of the various problems connected with Etruria. The choice is perhaps justified; though there is little to be said of the city, of which nothing remains* but a few fragments of the walls which are to be seen in the medieval fortifications, the extensive necropolis possesses one very important tomb of a type which has so far not been recognized elsewhere in Etruria. The necropolis was, as a fact, first brought to the notice of scholars by S. J. Ainsley, the friend of George Dennis, who published an account of the more interesting tombs in 1843: though the tomb in question was only noticed a few years ago by Von Mercklin, and was first described in print by Rosi,† who named it Tomba Ildebranda, after the great pope who was a native of the little medieval town. The full description of it which is given in the present work is the result of excavations which have been carried on by Bianchi Bandinelli, and it is the only example so far known of a real and complete reproduction of a temple in an Etruscan rock-cut tomb. The tomb known as the Grotta Pola is similar, but has no more than the front façade and podium; while in the two 'temple tombs' at Norchia the latter element is lacking, and there is no more than a pediment supported by columns. The Grotta Lattanzi at Norchia has two superposed orders of columns, and is not,

* Some scanty remains of a temple were found outside the walls in 1895, but we have no proper description of the excavations. A number of fragmentary terracottas, specimens of which are in the museum at Florence, were found.

† *Jour. Roman Studies*, 1915, xv, p. 49.

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therefore, the reproduction of a temple at all, but is rather an imitation of the double portico of a market or some other public building.

There are also several examples of cube tombs at Sovana, which, Bianchi Bandinelli maintains, are not to be treated as exact imitations of domestic architecture, but rather as summarized reproductions of it, in which the exact proportion of the various parts is not observed. The most important element is recognized (and rightly, I think) as being the sepulchral *cippus* which stood on the top, which at Sovana is generally hewn out of the rock like the rest of the tomb.

Another point in which I am glad to be able to agree with him is in his rejection of the parallelism which it has been sought to establish between the rock-hewn tombs of Etruria and similar tombs in Caria and Lycia with the object of acquiring arguments in favour of the Herodotean tradition of Etruscan origins. We would rather see in them the common stock of Hellenistic form from which the whole Mediterranean basin drew.

T. ASHBY.

DIE VERBINDUNGEN ZWISCHEN SKANDINAVIEN UND DEM OSTBALTISKUM IN DER JÜNGEREN EISENZEIT. By BIRGER NERMAN. (Kungl. Vitterhets Historie och Antikvitets Akademien's Handlingar). Stockholm: Akademien's Forlag, 1929. pp. 185, with 195 text-illustrations. 5 kronor.

The author examines the archaeological evidence in support of literary tradition of relations between Sweden and the region comprising Lithuania and Esthonia. He divides his thesis into two periods. Before the first of these, A.D. 400-800, archaeological evidence of communication between the two regions is sparse, but he is able to show that about A.D. 500 an influx of Swedish objects into the Baltic lands can be brought into line with an evident decrease in the population of the island of Gotland during the early part of that period. The relations thus established continued, though in diminished degree, throughout the period.

In the Viking Age, from A.D. 800 onwards, the literary sources are at first almost silent, but from 850 to 900 there are frequent accounts of expeditions of a warlike nature from Sweden. After a break of a hundred years they again become numerous enough to indicate a Swedish domination, though of rather short duration.

On the archaeological side these relations are marked throughout by a predominance of arms, swords, spears and the minor trappings of warriors as compared with female gear. From this phenomenon, the isolated nature of the finds and the absence of Swedish graveyards of Swedish type, such as occur in Russia proper, it is inferred that the Swedish campaigns were not followed by colonization in spite of the fact that most of the objects come from the western part of the Baltic lands. The numerous parallels that can be drawn between these and the antiquities of Gotland, the latter often peculiar to that island, suggest that it is rather a question of trade from that important *entrepot*. To judge from the protests made by popes of the 13th century, even the arms may have passed by way of commerce rather than in the course of the numerous Baltic campaigns of the period. In conclusion the corresponding East Baltic antiquities discovered in Sweden are summarily discussed.

Perusal leaves the impression that the material is somewhat slight to bear the full weight of Dr Nerman's deductions, but a survey of presumed imports from one region to another, especially when so amply illustrated and documented, will always receive a ready welcome from students of archaeology.

E. T. LEEDS.

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ACTA ARCHAEOLOGICA. Vol. 1, fasc. 1. Copenhagen, 1930. 21s. per annum (3 fasc.).

THE MUSEUM OF FAR EASTERN ANTIQUITIES, STOCKHOLM.
Bulletin no. 1, 1929. 20s.

ARCHIV ORIENTÁLNÍ: Journal of the Czechoslovak Oriental Institute. Vol. 1,
no. 1. Prague, 1929. 12s. (3 nos.).

New periodicals, if they are good ones, may justifiably alarm us in as much as they are here manifestly to strengthen the already vigorous onrush of important learned literature that now threatens to overwhelm by its sheer oppressive bulk even the most industrious and stout-hearted students. The claims of newcomers upon our attention accordingly invite an examination that is almost openly suspicious and it is as well to say at once that the first numbers of the three journals named above are all of unimpeachable excellence and will easily convince both librarian and reader that a place has to be found for them on our crowded shelves. They even deserve, I venture to think, a conspicuously warm welcome for the reason that, though they come to us from Copenhagen, Stockholm and Prague, their editors, knowing that the northern and central European tongues can only be a medium for local and esoteric record, have deliberately made a bid for international popularity by their wise decision to use only the better-known languages of French, German (in Roman type), and English.

Dr Brøsted and his distinguished colleagues, who together represent the countries of Denmark, Norway, Sweden, and Finland, purpose to provide in their handsome *Acta Archaeologica* a summary of the manifold archaeological activities of northern scholars in whatever province they may work; to this end they offer us some longish papers of solid worth and afterwards in a section of miscellanea find room for shorter notes and (in the future) select book-reviews of authority and real import. The catholic interests of the new journal is indicated by the choice of articles for the first number:—Dr Shetelig of Bergen describes in detail the Nylam boat at Kiel and is able to compare this famous 4th century vessel with his own Kvalsund boats and the later viking boats of Norway; then Dr Poulsen of the Copenhagen Glyptothek publishes three classical portrait-busts of more than ordinary importance and in so doing sets a standard of illustration (see especially plate iv) that it will be hard indeed to maintain; next Dr Friis Johansen of the National Museum at Copenhagen catalogues and discusses some seal-impressions that are evidence of Seleucid Hellenism in Uruk-Warka, and, finally, Herr Otto Rydbeck of Lund gives an English summary of his views upon the sequence of prehistoric civilizations in the north. The shorter notices, like the longer articles, are well illustrated and range in interest from Babylonian buildings to Norse carvings in bone and ivory; in this section the account of the Swedish town Sigtuna deserves special mention since it is patently a document of first-rate importance to the student of the early Middle Ages in northern Europe.

It may be that the wide scope of *Acta Archaeologica* will suggest some misgivings, most of us finding that an indiscriminate medley of eastern and western material differing in age and kind is a good place in which to lose even the most useful contribution of the individual specialists; but there is certainly no reason to fear that too great a range of interests will detract from the value of another new northern venture, the fine Bulletin of the Stockholm Museum of Far Eastern Antiquities, even though at first opening Fru Hanna Rydh surprises us with pictures of a Scottish beaker and the Folkton drums. But this is part only of a comprehensive paper on 'Symbolism in Mortuary Ceramics'

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that is a legitimate sequel to Professor Andersson's study of the symbolism of the pre-historic painted wares of China, and, Fru Rydh's excursus apart, this excellent publication is devoted to the problems of the Far East and the way thither over the steppes. The format and the illustrations of the bulletin are alike excellent. Chief among its contents is a notable paper on Chou Dynasty pottery, and in addition to the archaeological essays there are also valuable contributions to Chinese studies of historical, linguistic, and literary interest.

The new Czechoslovak Oriental Institute of Prague has likewise issued the first number of a journal, *Archiv Orientalni*, that is devoted to eastern studies. It is a smaller and more modest publication than the Swedish bulletin and its first number is unillustrated. The editors intend it to be a vehicle for an exchange of ideas among oriental scholars of all nations and the contents show that it is addressed only to specialists. There are articles on the Rwala Bedouins, Singhalese devil-worship, and Hittite and Egyptian texts, and there is also an important paper by A. Wesselski demonstrating how eastern history may in some instances be reflected in western legend. The uncompromising and scholarly severity of the *Archiv* is a virtue that its small public will esteem; all honour then to President Masaryk who has made its publication possible by his great-hearted endowment of the institute this journal represents.

T. D. KENDRICK.

EXCAVATIONS AT NUZI. Vol. 1. Texts of varied content, selected and copied. Edited by EDWARD CHIERA. *Harvard Semitic series. Harvard University Press; Oxford University Press, 1929. pp. 106. 27s 6d.**

Dr Chiera's book can of necessity be read only by specialists, since it consists of cuneiform texts without any transcription, translation, or commentary. Its contents, however, will interest those concerned with the ancient history of the East. The texts were found at Kirkuk, a town lying to the east of Assyria, and their provenance is well established. They consist of archives of a domestic, royal or priestly nature; out of the thousands of documents which the excavations yielded Dr Chiera now publishes 107, dealing with the affairs of two important families of the period round about 1400 B.C. Their interest lies in what they tell us about the customs of this society, whose very peculiar laws seem to have forbidden the splitting up of family property. To get round this prohibition it was usual to employ the term 'adoption' in agreements where the so-called adopted person received a portion of property and in exchange gave a present to his new relations. The tablets do more than this; they introduce us to an Assyrian-speaking people, many of whose proper names belong to a different language, which we know to be that spoken in the kingdom of the Mitanni, in Upper Mesopotamia, about 1400 B.C. An ethnic element of non-Semitic origin is to be found; it is called Subarean and includes the Hurri. During the second millennium a portion of the Hurri became the independent state of the Mitanni; they were ruled by a probably Indo-European aristocracy and their power increased considerably, extending from the Zagros range in the East to the Mediterranean in the West. This came about all the more easily because the Subarean people covered the whole region. This is shown by the fact that everywhere within it the same artistic style prevails, and the same proper names occur, indicating a large Subarean element in proportion to the total amount of the population. The language of the Subareans appears to have been very different from that of the Semites;

* Review translated by the Editor.

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on the other hand it is closely akin to that of the people called proto-Hittites who in the third millennium inhabited eastern Anatolia. Their proper names are known from the Cappadocian tablets (end of the third millennium), and from some fragments preserved in the archives of Boghaz Keui. This group of populations, which appears to represent the oldest stratum of the nearer East, has been called Asianic. The interest of the discovery, as will be seen, far surpasses that of the book itself; it consists in bringing to light a new factor of civilization and one which played a leading part in the history of Western Asia. For fuller knowledge of it we are indebted to Dr Chiera.

G. CONTENAU.

HISTORY AND MONUMENTS OF UR. By C. J. GADD. *Chatto and Windus*, 1929. pp. xvi, 270, and 33 plates. 15s.*

Recent excavations at Ur have revealed monuments and texts in such numbers that a monograph is possible; and such was the importance of Ur that to write its history is almost equivalent to writing that of Sumer itself. This has just been done by Mr Gadd, of the Department of Egyptian and Assyrian Antiquities in the British Museum. The discovery of what have been called the Royal Tombs of Ur, and of the relics of a Flood, enable us to follow its history right back to a period hitherto known only from Sumerian texts and called by them 'before the Flood'. It is a phase of civilization marked by the use of stone and of that painted pottery which occurs throughout Sumer. Then, after the flood whose deposits form a dividing stratum, the civilization changes its character; painted pottery disappears, writing becomes fully developed, metal becomes common (though it is still copper and not yet bronze); then appears in art the style called Sumerian and history begins with the first Dynasty of Ur. To this period, about 3100 B.C., belong the bulk of the Royal Tombs and the Temple of Tell el Obeid, a mound near Ur where Mr Gadd excavated. This first dynasty passed away and its supremacy passed to the city of Lagash, whose remains have been known since the French excavations at Tello. This archaic period ended with the dynasty of Agade, which represents the overthrow of Sumerian civilization by Semites of western origin.

The Guti, barbarians from the highlands of Zagros, overwhelmed Mesopotamia, and after an ascendancy of 120 years, the third Dynasty of Ur restored Sumerian civilization. The ruins of Ur have yielded a number of monuments of this period, from the Ziggurat—one of the best preserved in all Sumer—to the fragments of the stele of Ur Nammu, the founder of the Dynasty. On it he is shown standing before his god, offering a libation or a bloody sacrifice, or perhaps in the rôle of founder of the temple.

Next ensued a civil war, and the first Babylonian dynasty whose most distinguished ruler, Hammurabi, secured for the kingdom a degree of prosperity which was welcome after the previous troubles.

The next period is that of the Kassites, invaders from the East, less barbarous than the Guti; they ruled the country for 570 years. Under this dynasty, notably under King Kurigalzu, some of the great temples of Ur were restored. The city seems to have been relegated to a back place during the Assyrian Empire, when it was controlled by a governor. One of them, nevertheless, Sin-balatsu-iqbi, had important work done there on the Ziggurat and temple-structures. Under the neo-Babylonian Empire, the good king Nabonidus showed his religious zeal by renovating the monuments of the city,

* Review translated by the Editor.

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till he became unpopular by foolishly robbing the provincial towns of their principal gods and concentrating them in his own capital. The Persian conquest was welcomed throughout the whole Empire, and one of the first acts of Cyrus was to send Ur the statue of Sin, the Moon-god, which had been removed from the town. Ur now came to the end of its existence; the last dated document from it belongs to 440 B.C. Perhaps it was still inhabited up to the third century: after that came oblivion.

Mr Gadd describes the course of events, treating of the problems to which they give rise, notably that of the migration of the clan of Abraham from Ur of the Chaldees, which may be assigned to the period of Hammurabi. One cannot recommend his book too highly, for it tells its story in a form which is both readable and authoritative.

G. CONTENAU.

THE SANCTUARY OF ARTEMIS ORTHIA AT SPARTA: excavated and described by members of the British School at Athens, 1906-1910: *edited by R. M. DAWKINS. Published by the Society for the Promotion of Hellenic Studies. Macmillan, 1929. pp. 420 with frontispiece, 148 illustrations in the text, 208 plates. £5 5s.*

This volume, by which the Hellenic Society marks the fiftieth year of its devotion to classical archaeology, incorporates material previously scattered in several volumes of the *Annual of the British School at Athens*. Of the team who contribute to it, all, except Professor H. J. Rose, were members of its editor's staff upon the site; since then, War claimed Guy Dickens, to whose valuable writings a posthumously published paper is here added.

This excavation, the School's most important contribution to research into classical antiquity, was distinguished by great accuracy of method; it gave cause for a revision of the common estimate of the Spartan character; and has provided abundant material for explanation and application. This book puts forward the evidence; the preface frankly disavows any intention of dealing deeply with either its implications or its connexions: we must be content with the facts, here presented definitively within one cover.

The sanctuary arose in the riverside district of Limnai in the ninth, or even the tenth, century B.C., later only in Dorian Sparta to the Amyklaion and the Acropolis site, to judge from the technique of the Geometric pottery. Soon, still in the Geometric period, a wall, a cobble-pavement and an altar were made, remains of which were scanty; while of the temple which presumably accompanied them no trace was found. The earliest temple-remains are associated with the 'Archaic Altar' of the next period, dated from the ninth to the seventh century, during which 'Laconian' pottery is developed from Geometric and passes through the first two of the six stages into which Professor Droop has divided its history. The temple must have been a very simple example of the infant Doric style; Professor Dawkins' inferences from its foundations suggest a line of enquiry into Dorian origins.

The archaic altar has been well preserved beneath a layer of sand by which, probably to prevent inundation, the level of the sanctuary was raised about 600 B.C., and which acted as a stratigraphical line of division. Upon it appeared a new temple, whose foundations served for subsequent rebuildings, including that of the Roman period. By conjecture from a few fragments and from analogy it may be plausibly reconstructed as *prostyle in antis*, with a painted *pores* pediment decorated with a pair of heraldically facing lions. The only remnants of a Greek altar associated with it are, with some diffidence, referred to the 5th rather than the 6th century (to which the temple belonged)

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on account of the objects found in their vicinity. In any case the superimposed Roman altar has almost obliterated its Greek predecessor.

The period immediately succeeding the laying down of the sand saw the acme of the Laconian pottery style, in Lac. III and IV: the vases previously known as 'Cyrenaic' are shown by Professor Droop to have been, beyond all doubt, exports of this period from Sparta. Greater care was now apparently exercised in the removal of sacrificial *débris* from the temple and altars: it was thrown clear of them over the edge of the sand fill; the resultant sloping strata were excavated with reference to the nature of the earth and similar considerations, instead of by levels only. The details of this process which were published in vol. XIV of the *Annual* help to establish confidence in the chronological assumptions made: but it does not appear, either from Professor Droop's definition of Lac. IV (which differs from Lac. III in its incipient degeneracy of style and technique), or from Mr Wace's remark that the only dichotomy possible in the lead figurines of Lac. III-IV would be the grouping of types carried over from Lac. II as Lac. III, and of those which persist into Lac. V as Lac. IV, that close-cut distinctions can here be drawn. It is, in fact, unfortunate that just at a time when Laconian art had reached a static point, precluding its decline through successive stages of degenerative repetition, its remains should have occurred in a context which, with the utmost skill in excavating, must still present great difficulty and uncertainty.

To consider the dating of these strata: Lac. I's appearance is put at c. 700 B.C. on account of the occurrence of Sicyonian ('Proto-Corinthian') pottery with Geometric alone (45%), with Geometric and Lac. I mixed (45%), and with Lac. I alone (8%); calculation based on depth of deposit gives c. 900, or even earlier, for the earliest Geometric pottery on the site. The layer of sand dividing Lac. II from Lac. III is dated c. 600 by (i) the epigraphical evidence of two inscribed Lac. II plates belonging to the latest pre-sand period, (ii) the external evidence for dating Lac. III to c. 600-550 provided by the Arkesilas cup in the Bibliothèque Nationale and by Laconian pottery found by Petrie at Daphnai, (iii) the presence of marble mason's chips throughout the sand, indicating that the latter was laid down gradually as the new temple's foundations rose and that there was no great gap between the pre- and post-sand periods. Remains of the Lac. II style were very few: Professor Droop reinforces his description with material from the Menelaion (and the excavations of 1924-27 on the Acropolis have added more, with which he has dealt in the *Annual*, vol. XXVIII); it therefore would seem, either that the flooding which induced the Spartans to raise the level of the sanctuary denuded the site of its upper strata, or that it caused a hiatus in offerings which it is hard to reconcile with the advanced character of the latest remains from below the sand.

The development of the pottery is paralleled by that of the other finds, in particular of the lead figurines, characteristic of Sparta, which occurred in immense quantities, especially in the Lac. III-IV context. At first they often imitate jewellery, but this is largely superseded by other types after Lac. II, i.e. after the Second Messenian War; the embargo on jewels naturally rendered the dedication of ritual counterfeits meaningless if not distasteful. The art of ivory-carving, represented here charmingly and more fully than, probably, anywhere else in Greece, is proved by the existence of unfinished examples to have been local: it has been much discussed, notably by Hogarth and Poulsen. Professor Dawkins concludes that of the elements which combined to influence it the Phoenician was the strongest and the Ionian the weakest; but that the native Spartan element is also a dominant feature. Guy Dickins' paper describes, classifies and

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discusses the terracotta votive masks, mainly found above the sand: these should provide interesting material for the study of racial types. On the bronzes, summarily treated by Professor Droop, further notes by Miss Lamb will be found in the *Annual*, vol. XXVIII. It is interesting to notice among them a miniature jug with 'cut-away' neck, typical of Macedonia. Mr Wace deals with the few sculptural fragments, and Professor Dawkins with the jewellery, etc.: Mycenaean gems survived in use, and exercised an artistic influence.

To resume the history of the site: the excavators noted a great decrease in the numbers of small finds of the Lac. V and VI periods; they occurred in patches at a uniform level which suggested that the site was artificially levelled about 500 B.C. But the most plentiful Lac. V-VI remains came from houses (probably occupied by sanctuary officials), where Lac. VI was seen to yield to Hellenistic ware and Megarian bowls, thus establishing the date c. 250 B.C. for the final years of its manufacture. A great covered drain was made in the later 3rd century, and, probably at the time of the Lycurgan revival, the temple was reconstructed and re-roofed.

During the period from the 4th century to the Roman rehandling of the site a series of dedicatory inscriptions, mostly of the later 1st and 2nd century A.D., accumulated. These Mr Woodward describes with much prosopographic detail. The most interesting are those commemorating *Bomonikai*, boys successful in the endurance-test, who dedicated their prizes (sickles), and sometimes statues of themselves. There is no evidence (as Professor Rose in his very useful and learned paper on the cult of Orthia shows) for the existence of a cruel and vicious rite before late Hellenistic and Roman days. In Roman times—after A.D. 225—an amphitheatre was built, in which the front of the temple took the place of the usual proscenium and stage-buildings; and it may well be that the performance of this unkind ritual was witnessed from its benches. This theatre, a conspicuous ruin a century ago, became a quarry for modern Sparta. But pier-bases and radial supporting-walls have been excavated. The end of the story is shadowy: the cult lasted to the 4th century A.D. at any rate; Christianity came late to Laconia.

This review necessarily cannot do justice either to the material revealed by this excavation, or to the labours of those who have described it. Attention has been rivetted upon the pottery, because of its chronological significance: but the other finds are of great interest and importance. In addition to those already touched on, Professor Dawkins devotes space to the numerous terracotta figurines and to the carvings in soft limestone; and Mr Woodward adds to his lengthy article upon the inscriptions a joint paper with Mr George upon the architectural terracottas, and has also an inventory of coins from the site, with notes on the iron currency. To Miss Tankard many will be grateful for the graphic chart of the six Laconian pottery styles.

Professor Rose declares that the cult of Orthia was purely Dorian, even if later identified in some aspects with that of the 'Persian Artemis', who, as Our Lady of Wild Things, was worshipped in pre-Hellenic Greece. Mr Wace, who quotes Professor Nilsson in support of his view, is inclined to suppose that Orthia may have descended from the Bronze Age, or that at least her cult was closely connected with cults of that period. He instances certain survivals of type and ornament displayed by the lead figurines, especially those of earlier date. There are, indeed, a number of factors which make one wonder what elements, artistic and otherwise, of early Dorian Sparta are to be referred to the pre-Dorian inhabitants, with whom, before the introduction of the one-sided arrangements known to history, the Dorian must have arrived at some kind of *modus vivendi*.

W. L. CUTLER.

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OUR FOREFATHERS, THE GOTHONIC NATIONS: a manual of the Ethnography of the Gothic, German, Dutch, Anglo-Saxon, Frisian and Scandinavian Peoples. By GUDMUND SCHÜTTE. Vol. 1, translated by JEAN YOUNG, M.A. (Cantab.). Cambridge, at the University Press, 1929. pp. xi, 301. 21s.

This manual of the ethnography of our forefathers, the first volume of which appeared in Danish in 1926, is planned on a large scale. The part published may be said to form an introduction to the great work and deals with the earliest phase, the names, subdivision, ethnic position, environment (neighbours), old home, language, civilization, and history of Gothonic (Germanic) peoples on more general lines. The various nations, Anglo-Saxons, Scandinavians, etc., will be fully dealt with in the next volume (or volumes). Obviously a definite judgment of the book must be reserved till it can be studied in its complete form.

The ethnography of Germanic nations is not really a one-man job, even if the author is a scholar who has, like Dr Schütte, devoted half a lifetime to the subject. It is impossible for one scholar to master equally well all the different departments of the field. Specialists will find numerous details that are open to criticism, and for this the author himself is prepared. I could myself contribute a fairly long list, if space permitted it. I content myself with a few examples. We are told (p. 46) that 'breaking' before a single consonant does not normally take place after w, l, r, in Scandinavian and Old English. This is certainly not true of Old English; cf. *cleofian*, *andleofen*, *leofian*, *reopian*, etc. The British word *Dornovarii*, which plays a fairly important rôle for the author's theory on the origin of the suffix *-arii*, is unrecorded. All we know is that the old name of Dorchester was *Durnovaria*. The statement (p. 188) that in Scandinavia long by-names such as *Haraldr Hårfagri* were restricted to princely people, those of lower rank normally continuing to have short surnames, is at least exaggerated, as a cursory glance at the lists of Norse surnames in Lind's collection will show.

At the same time it must be admitted that there is an advantage in the manual being throughout the work of one man. As it is, the book bears the stamp of one individuality. The same fundamental standpoint is adhered to in the various parts. The whole framework is built up with strict consistency. The author himself is of opinion that the strength of the book lies in its method, the systematic framework, rather than in the subject-matter. There can hardly be any doubt that the book will have an influence on future research in the field of Gothonic ethnology, and the wider publicity gained by its publication in English is to be welcomed.

But also in the subject-matter the book offers much that is new and original; the author's outlook is independent and he has the courage of his convictions. Personally I am not convinced that the theories advanced will all hold water or that the arguments used are always valid, but they are generally interesting and at least worthy of consideration. Very suggestive is the chapter on language (pp. 147-197), which deals with the formation of names and other words from new points of view. The chapter on the old home of Gothonic nations seems to me to be one of the most convincing. On the strength of the old traditions of various Gothonic peoples and the distribution of name-types Dr Schütte makes Scandinavia the old home, but he is inclined to believe that a still earlier home, common to Gothonic, Italic and Celtic peoples, is to be sought somewhere on the North Sea coast. He assumes considerable Celtic influence not only on the civilization, but also on the language of Gothonic peoples. The origin of the name *Germani* is fully discussed. The author accepts the view that the name was transferred

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to Gothonic peoples from a Celtic-speaking tribe in Belgium. But it does not follow, he says, that these Germani were originally Celts. In the Danish edition he suggests that they were celticised Ligurians and adduces linguistic evidence in favour of his theory. In the English edition the section is much curtailed and the theory is not clearly formulated, though one seems to read it between the lines.

The translation must have been for various reasons a difficult task. Dr Schütte's style, often abrupt and strongly compressed, is not always quite easy to follow in the original Danish. On the whole the translator is to be congratulated on her achievement. But I have noticed a number of inaccuracies due to misunderstanding of the text. Sometimes the translator makes the author express himself rather more apodictically than he does in his Danish text, as when she uses the strong 'undoubtedly' where the Danish has the milder 'uden Tvil', 'sagtens', 'sikkert', or omits a qualifying adverb of this nature. Some of the slips are of a venial nature, but some are of a serious kind. Only a few instances can be given here. In one case (p. 24) Miss Young has misunderstood an absolute comparative 'if he were better informed' for 'if he was fairly accurately informed'. The nonsensical statement that the Scythians should be counted as 'Iranians, Turko-Tartar invaders' (p. 68) should be corrected to 'Iranicised Turko-Tartar invaders'. The passage on Gothonic *siþoneis* (p. 76) is not very clear in the original, but unintelligible in the translation. A correct rendering would be: 'the cult of Xamolxis with its philosophical schooling flourished among the Getae and Dacians. Here we have the most obvious source of the Goths' class of disciples'. 'Livonian Vidu-maa would be Livonia to-day' should be 'Liv. Vidu-maa to-day means Livonia' (p. 79). 'Chance assonance' (p. 82) should be 'chance similarity'. In the passage on Gothonic coiffure (p. 200) the translator has overlooked the fact that Dan. *pisk* means both 'whip' and 'pigtail'. The translation of the word twice as 'whip' makes havoc of the sense. The Norwegian farmers of Sætedal are stated to have used a 'wry-hafted whip' instead of a pigtail worn askew in some way. On the following page the loin-cloth of the fighting Eruli becomes a 'linen shirt'.
EILERT EKWALL.

ETRUSKISCHE FRÜHGESCHICHTE. By FRITZ SCHACHERMEYR. *Berlin and Leipzig: W. de Gruyter, 1929. pp. xvii, 316*

The writer of this volume is already well-known as the author of an interesting and suggestive book on Etruscan art and origins. The present work is much more mature and has evidently taken much longer to prepare. It is undoubtedly the most important memoir on the Etruscans that has appeared for two or three years. Since 1928, when the international conference was held at Florence, there has been a great development of interest in this subject and various new writers have entered the field. Schachermeyr stands in the forefront of these recent recruits by virtue of his very wide training and his unusual independence.

A convinced adherent of the oriental theory which is now held by all but a very few, Schachermeyr wastes no unnecessary time in debating with those who maintain the autochthonous Italian origin of the Etruscans. His essay is intended less to dispel any lingering doubts on this point than to explain the time and manner of the Etruscan immigration and to fix more exactly the place of their original home. Primarily more of a historian than an archaeologist in the strict sense, he yet shows a considerable knowledge of the archaeological material and much critical ability in dealing with it.

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His strongest qualification for his task, however, is a wide knowledge of Asia Minor, reinforced by actual travel in the country, and a close association with Lehmann-Haupt, the explorer of Armenia.

The first part of the book, pp. 1-83, gives as much of the general historical background as is necessary to envisage the problems. 'Das vorderasiatische Gleichgewicht', 'Der kretisch-mykenische Kulturkreis', 'Die ägäische Wanderung', 'Die östlichen Mittelmeerländer nach der ägäischen Wanderung', are titles which sufficiently indicate the general range of the first four chapters. The fifth, entitled simply 'Italien', sketches very briefly the progress of Italy from the beginning of the Terremare down to 1200 B.C.

In his account of the 'Aegean Wandering' the author relies to a considerable extent upon parallels with the great movements of Celts, Germans, Slavs and Normans in later periods. He pictures this 'wandering' as a general movement from north to south by land and sea, bringing hordes of barbarians whose inroad broke up the whole existing balance in the Eastern Mediterranean. The principal evidence for it is to be found in Egyptian historical inscriptions, supported by a certain number of references in Assyrian documents and in the Old Testament. Corroboration of these is given by a series of archaeological facts which cannot be merely a string of coincidences. Almost simultaneously the civilization of Crete was overthrown, the Mycenaean culture was obliterated on the mainland of Greece, the upper layers of Hissarlik betray the presence of barbarian newcomers, Carchemish is destroyed and many flourishing cities of Asia Minor disappear for ever from the map. After this series of catastrophes, which the Egyptian records enable us to date very closely to 1200 B.C., there came a short period of ephemeral barbarian states of which the Philistine may stand as an example. The breaking down of these in turn was followed by a time of general reconstruction, to be dated from the 10th to the 8th centuries.

It is precisely during this period of reconstruction that our author places the emergence of the Etruscans from their previous obscurity. Dwelling on some part of the coast of Asia Minor, the exact location of which is determined in the last chapter of the book, they had as their principal neighbours, besides the Aeolian and Ionian Greeks, the Assyrians, Phrygians and Armenians—all at the height of their power. The importance of the Armenian state has only recently been brought out by Lehmann-Haupt, and pending the full publication of his second volume on Armenia, can only be estimated from the articles written by Schachermeyr himself for Ebert's *Real-Lexikon*. It centred round Tuschpa on the Lake of Van and is associated with a people known as the Chaldei—by no means to be confused with the Chaldaeans. All these natives of Asia Minor were remarkably advanced in all sorts of mining and metallurgy. The excellence of the Etruscans as copper-smiths, goldsmiths, and workers in iron is explained by their long and close association with these very gifted metal-workers in a land that is rich in every ore.

The second part of the book is mainly concerned with archaeology as conceived on a few very broad lines. Though historical documents, Hittite, Egyptian or Assyrian may throw much light on the general circumstances of the time it is only archaeology, as our author sees, which can decide the essential point of the Etruscan problem. Schachermeyr's application of it is an examination of all the forms of grave-architecture. He examines this, so far as the material allows, both in Asia Minor and Etruria during the three centuries 1000 B.C. to 700 B.C. The result of this scrutiny, he maintains, is to

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show that there is complete identity of usage at the same periods in each country. Since this grave-architecture is wholly unlike anything ever employed by the native Italians, it must be derived from abroad. And as burial-customs are not transferred to strangers like articles of commerce, the Asiatic forms of burial employed in Italy prove the actual presence of Asiatic immigrants.

The seriation of the grave-forms leads our author to yet another conclusion, which, if it could be safely established, would be of great importance. He believes this seriation to prove that there were two main waves of Etruscan immigration, the one about 1000 B.C., the other about 800 B.C. Most recent writers have been contented with only one wave, the later of the two suggested by Schachermeyr. But there is no *a priori* objection to two, and the theory has the great advantage that it harmonizes with the known and perfectly definite Etruscan count of years. It also removes the contradiction with the dates of Herodotus, which is less important but has always been reckoned something of an objection to the view that the Etruscans only arrived about 800 B.C. The reason that the theory of an earlier wave has never been acceptable to writers like Ducati and myself is that there appeared to be no archaeological evidence whatsoever in support of it. Now, however, Schachermeyr comes forward with the contention that certain tholos graves, and also trench graves, at Populonia go back to his 'period of the disc-fibula', which he defines as from 1100-820 B.C. The serious leap is when he elects for the beginning instead of the end of this period. His reasons for this are of a vague generalizing character and the argument needs much reinforcement before it can be considered as convincing. Further development, however, of the study of Corneto-Tarquinii and Populonia may conceivably provide more material for this thesis, the proof of which, if it could be obtained, would be exceedingly important.

Schachermeyr's treatment of the 'second wave' differs only in minor details, which are beyond the scope of this review, from the treatment of most other writers. I welcome, however, his demonstration that the circle graves of Vetulonia were originally tumuli. This view had been already suggested by some Italian archaeologists but had never before been clearly argued in print. If, as I think, we may unhesitatingly accept it, this argument proves the existence of genuine tumuli at least a century earlier than they are known on most Etruscan sites, and may be quite valuable in estimating the possible antiquity of the first tumuli at Cervetri and elsewhere.

Space forbids me to deal with chapters discussing the language of the Etruscans or the interminable contradictions in the classical statements as to the Pelasgi. The kernel of the book, at least for the archaeologist, is the long and detailed examination of the grave-forms. Schachermeyr has made out a strong case, but it needs to be very critically examined from both sides, viz.: by those who have special knowledge of Asia Minor and by those who have intimate acquaintance with the Italian sites. It would not be fair to blame the author for using a certain amount of material which is clearly defective, or for sometimes supplying by an ingenious conjecture that which is no longer visible in concrete form. Every constructive writer is obliged to do this in a greater or less degree. Ultimately, however, the soundness of the edifice will depend on whether this defective material can stand the strain, or can presently be reinforced. As to this I venture no judgement. I do not hesitate, however, to say that *Etruskische Frühgeschichte* is a very interesting book, characterized by an ingenious use of wide and varied learning. Even apart from the demonstration of its principal thesis it contains many suggestions and criticisms which deserve careful study and attention.

D. RANDALL-MACIVER.

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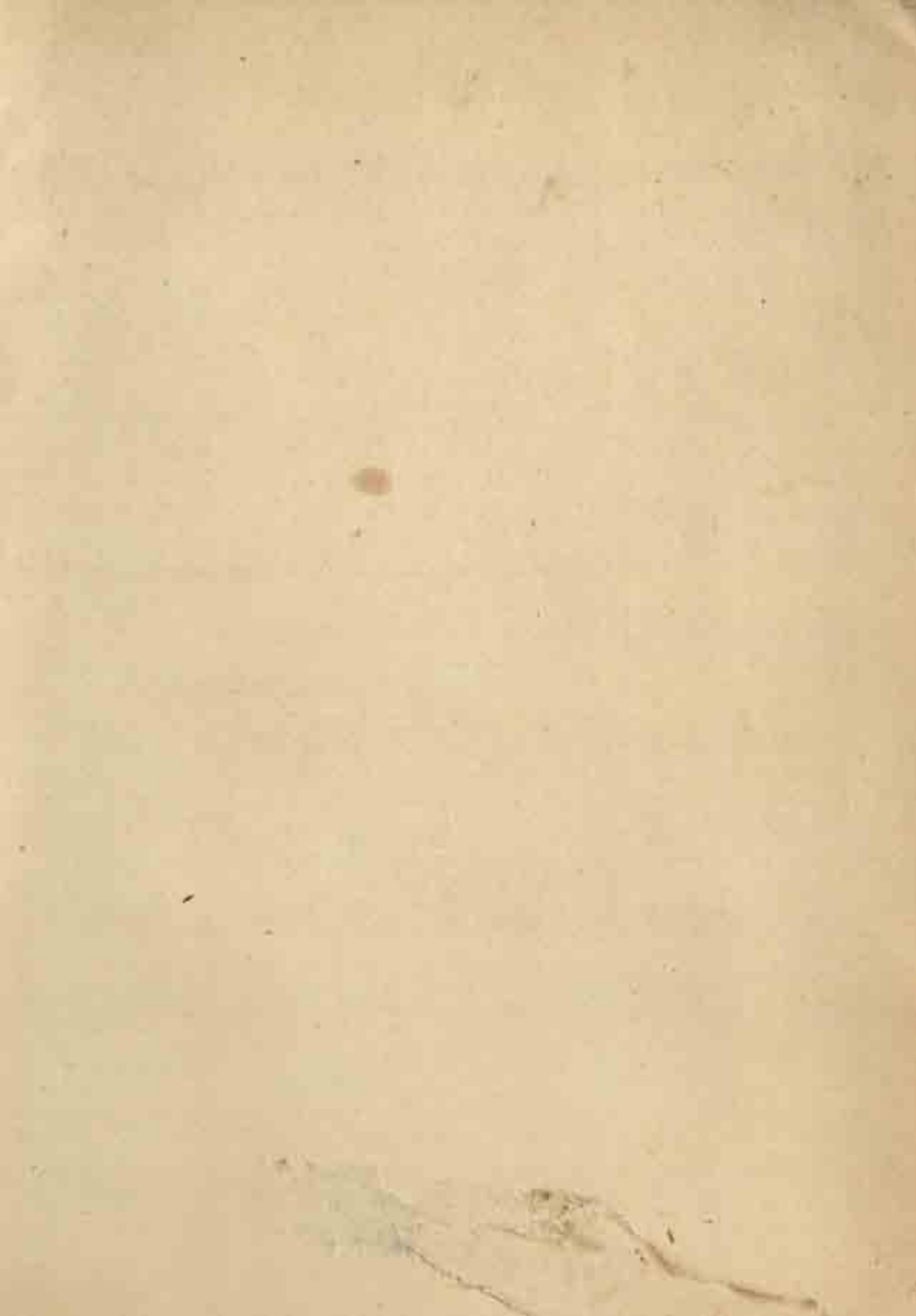
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